S. HRG. 100-334, PT. 1

RIO CHAMA RIVER, NEW MEXICO

HEARING

BEFORE THE

SUBCOMMITTEE ON
PUBLIC LANDS, NATIONAL PARKS AND FORESTS

OF THE

COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

ON

S. 850

TO AMEND THE WILD AND SCENIC RIVERS ACT TO DESIGNATE A SEGMENT OF THE RIO CHAMA RIVER IN NEW MEXICO AS A COMPONENT OF THE NATIONAL WILD AND SCENIC RIVERS SYSTEM

SANTA FE, NM, JULY 27, 1987

PART 1

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RIO CHAMA RIVER, NEW MEXICO

MONDAY, JULY 27, 1987

U.S. SENATE,
SUBCOMMITTEE ON PUBLIC LANDS,
NATIONAL PARKS AND FORESTS,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Santa Fe, NM.

The subcommittee met, pursuant to notice, at 9 a.m., in R.F. Apodaca Hall, PERA Building, Santa Fe, NM, Hon. Jeff Bingaman, presiding.

OPENING STATEMENT OF HON. JEFF BINGAMAN, A U.S. SENATOR FROM THE STATE OF NEW MEXICO

Senator BINGAMAN. Let me just call the hearing to order and make a very short statement here, and then defer to my colleagues to make their statements.

This is a hearing of the Subcommittee on Public Lands, National Parks and Forests of the Senate Energy and Natural Resources Committee, and I want to begin by thanking Senator Bumpers, who is Chairman of that subcommittee, and the staff from the Subcommittee, and the full Energy Committee for their help in bringing about this hearing.

The purpose is to receive testimony regarding Senate bill 850 and the companion House bill to designate a segment of the Rio Chama in New Mexico as a component of the National Wild and Scenic Rivers System.

I introduced this measure on March 26th of this year with Senator Domenici co-sponsoring the legislation and Congressman Richardson and Congressman Lujan introduced the legislation on the House side, which is identical to what was introduced on the Senate side.

Before proceeding to the witnesses, let me just handle a couple of administrative matters.

Let me first begin by thanking Phil Wallin. Where is Phil? Phil did a tremendous amount of work in preparing for the hearing and helping with the formulation of the legislation, and he deserves a great deal of credit for that.

I also want to thank Mitch Foushee of my staff for all his help on this issue.

We have a large number of witnesses, and in order to try to accommodate all those who have been scheduled to testify, we want to try to emphasize to everybody the need to summarize their testimony and not go through written testimony. We will accept written testimony and include it in the record, but we do need to have

people try to keep their remarks as short as possible—hopefully, three to five minutes—and summarize their main points.

We have grouped the witnesses in panels in order to expedite the hearing, and we will try to insure that all of you get heard.

If you do have a written statement that you would like to have included in the record, hold on to it until the time that you're called upon. At that time, the staff will get those written statements from you.

The record of this hearing will remain open for 30 days for additional statements and submissions, and you can send additional statements to our offices either here in New Mexico or in Washington, DC. We will see to it that they are made available to the Committee and included in the hearing record.

This legislation as drafted would add an important new component to the country's Wild and Scenic River System. The Rio Chama possesses outstanding natural, ecological and recreational characteristics that deserve to be protected under the Wild and Scenic Rivers Act.

The New Mexico legislature designated this portion of the Rio Chama as the State's only Scenic and Pastural River in 1977. The State Act encourages eventual Wild and Scenic Designation, which this legislation we're considering today would accomplish.

Specifically, the legislation would add to the National Wild and Scenic River System a 31-mile section of the Rio Chama—or 30.75 miles, to be specific—beginning at a point just downstream from El Vado Dam and extending to elevation 6,283.5 feet, which is the upper limit for flood control and authorized permanent storage of 200,000 acre-feet at Abiquiu Reservoir.

I know there have been concerns raised that the bill as introduced would have the practical effect of preventing the maximum storage of water at Abiquiu Reservoir. Needless to say, none of us have any desire to jeopardize any compelling need for water supply in New Mexico. The intent of this legislation is simply to recognize the recreational, scenic and wildlife values of a portion of the Rio Chama, and to insure that those values weigh heavily in any future decisions regarding the reservoir and the river.

I think the testimony today will reveal that there are alternatives that need to be considered that will allow us to provide needed water for our citizens and farms without sacrificing our finest recreational and scenic resources.

This proposal has overwhelming support of the environmental groups and recreational enthusiasts in New Mexico. Many New Mexicans believe that Federal preservation of this river is all we can do on the basis of this river's extraordinary features. I support the legislation and hope we can act successfully on it in this session of the Congress.

[The text of S. 850 follows:]

II

100TH CONGRESS
1ST SESSION

S. 850

To amend the Wild and Scenic Rivers Act to designate a segment of the Rio Chama River in New Mexico as a component of the National Wild and Scenic Rivers System.

IN THE SENATE OF THE UNITED STATES

MARCH 26 (legislative day, MARCH 24), 1987

Mr. BINGAMAN (for himself and Mr. DOMENICI) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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A BILL

To amend the Wild and Scenic Rivers Act to designate a segment of the Rio Chama River in New Mexico as a component of the National Wild and Scenic Rivers System.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. DESIGNATION OF RIO CHAMA RIVER.

(a) DESIGNATION.—Section 3(a) of the Wild and Scenic Rivers Act (16 U.S.C. 1274(a)) is amended by adding the following new paragraph at the end:

"(62) RIO CHAMA, NEW MEXICO.—The segment extending from El Vado Ranch launch site (immediately south of El Vado Dam) downstream approximately 30.75 miles to

elevation 6283.5 feet above mean sea level; to be administered by the Secretary of Agriculture and the Secretary of the Interior. For purposes of compliance with the planning requirements of subsection (d), the Cooperative Management Plan for the river prepared by the Secretary of Agriculture and the Secretary of the Interior may be revised and amended to the extent necessary to conform to the provisions of this Act. The segment of the Rio Chama beginning at the El Vado Ranch launch site downstream to the beginning of Forest Service Road 151 shall be administered as a wild river and the segment downstream from the beginning of Forest Service Road 151 to elevation 6,283.5 feet shall be administered as a scenic river. In accordance with section 10(b), nothing in this paragraph shall be construed to affect or impair the application of the Wilderness Act to lands within the boundaries of the river which are also components of the national wilderness preservation system.".

(b) RENUMBERING.—Section 3(a) of the Wild and Scenic Rivers Act (16 U.S.C. 1274(a)) is amended by redesignating the paragraphs relating to the Cache La Poudre River, the Saline Bayou, Black Creek, the Klickitat, the and White Salmon as paragraphs (57) through (61), respectively.

SEC. 2. MANAGEMENT OF OTHER RIVER SEGMENT AND FOREST SERVICE LANDS.

The Secretary of the Interior, acting through the Bureau of Land Management, and the Secretary of Agriculture, acting through the Forest Service shall manage the segment of the Rio Chama River in New Mexico from elevation 6,283.5 feet above mean sea level downstream to elevation 6,235 feet above mean sea level, together with the adjacent Forest Service lands not included in the Chama River Canyon Wilderness. Such management shall be pursuant to—

(1) the Preferred Alternative for the proposed Santa Fe National Forest Plan (as of January 1986), and

(2) the "Interim Rio Chama River Management Plan," dated May 1986 (as that plan may be revised in the "Final Rio Chama River Management Plan").

Nothing in this section shall be construed to prohibit operation of Abiquiu Dam for purposes authorized by law as of the date of enactment of this Act.

○

Senator BINGAMAN. I welcome Senator Domenici and Congressman Richardson and welcome their help in this effort, which has been present from the beginning. I will defer to them, and allow them to make any statements they want before we start with our panels.

Senator Domenici, go ahead.

STATEMENT OF HON. PETE V. DOMENICI, A U.S. SENATOR FROM THE STATE OF NEW MEXICO

Senator DOMENICI. Thank you very much, Mr. Chairman.

Let me suggest that I think we will be doing a lot of talking together as we assimilate this testimony; so I shall be very brief.

Some of you may know that I was privileged to follow onto the Albuquerque City Commission a very distinguished chairman. His name was Maurice Sanchez. He served on the Albuquerque City Commission during a period of time when a very historic event occurred.

Then-Senator Clinton P. Anderson was proposing a major water project as part of a deal with Arizona. Arizona was getting its water, and we were getting none. As a consequence, Senator Anderson put together the San Juan-Chama Diversion, an incredible project for the state of New Mexico. A huge tunnel was built through the mountains, a project beyond anything I could conceive.

The end product of that was to move water from the Colorado River Basin, and but bring it over here. Then the Congress decided that if we really wanted that water on this side, we ought to pay for it, we ought to pay part of the cost of the tunnel and part of the cost of the maintenance. We got a good deal. Costs were spread over a long period of time.

But a number of entities in New Mexico put their John Hancock's on the line and bought that water. The biggest commitment was made by Albuquerque. The city agreed to buy 46,000 acre-feet of water a year so that Albuquerque and the surrounding areas would never run short of water. That was a very major, multi-, multimillion-dollar commitment. The city is paying it off now.

Frankly, how that water is used and when it is needed is very complex. I hope, Mr. Chairman, that the State Engineer and the City people will tell everyone here and New Mexicans about that.

But, in essence, the law was changed in 1982. I was privileged to do that for the City of Albuquerque. We approved storing 200,000 acre-feet of that water—water that I've just described, water purchased with a huge commitment over time—at Abiquiu. In addition, that dam has 50,000 acre-feet worth of sediment storage, and about 500,000 acre-feet for flood control.

We now confront a situation where, obviously, a very large portion of the Chama River ought to be made Wild and Scenic, no question about it. But we are confronted with a very delicate decision on the bottom three or four miles. This might, indeed, have a major, major impact on the future capability of using the water that I was talking about, because we may have no other place to store it. And you can't store water in a Wild and Scenic River, even for one mile. This may be a future thing that we don't really need to worry about. I submit that if the City Council of Albuquerque

had not worried about it, we would be in a pretty big jam in 15 or 20 years—not today, but 15 or 20 years from now.

So, I think we have to carefully analyze that. And if there is no jeopardy, then obviously, we ought to pass the bill as offered. But if there is some jeopardy, we ought to think of ways to make sure we protect the Chama's wild and scenic quality and provide for that future prospect when some small portion of the river might be needed for reservoir storage.

Please, no one misunderstand that this Senator is suggesting that we now fill that dam, which has a capacity of 1,250,000 with authorization now at 750,000. I hope no one is thinking that I'm prepared to ask that it be filled to its capacity. Not at all. In fact, not one additional drop of water can be stored there without Congress authorizing it.

And, clearly, if we're ever going to authorize it at all, we will study the dam's safety, and other things. But, I think in a sparce-water state, the issues are always delicate. This may seem simple, but it is both delicate and very complex.

Thank you, Mr. Chairman.

Senator BINGAMAN. Thank you. Sponsoring this legislation on the House side is Congressman Bill Richardson.

Bill.

STATEMENT OF HON. BILL RICHARDSON, A U.S. REPRESENTATIVE FROM THE STATE OF NEW MEXICO

Mr. RICHARDSON. Thank you, Senator and members of the Energy Committee in the Senate and the staff. I appreciate the courtesy of allowing me to be an observer and ask a few questions at this hearing.

This bill is a result of a cooperative effort among national and local conservation groups, local land owners, and a growing number of citizens who appreciate the unique characteristics of the Rio Chama. The special qualities of the Rio Chama have also been recognized by the Forest Service and the BLM, which regulates boating on the river. Both agencies have recommended that this section of the Rio Chama be designated as Wild and Scenic.

The New Mexico Legislature designated this same 31-mile segment of the Rio Chama as the State's only Scenic and Pastoral River in 1977 and encouraged Federal Wild and Scenic designation.

I probably don't need to repeat the superlatives that have already been used to describe the Rio Chama, because I believe that anyone who has seen it agrees that it deserves to be included as a Wild and Scenic River.

Let me emphasize that the Rio Chama is not a river that will be accessible to only a select few. It is less than three hours' driving time from three-quarters of the state's population. The rapids are not so difficult that they cannot be enjoyed by a wide cross-section of citizens.

The Rio Chama offers a wonderful opportunity to combine the beauty and tranquility of a wilderness experience with the thrill of a whitewater trip that can be enjoyed by the whole family. Federal Wild and Scenic Designation will give the Rio Chama national

status and increased tourism and will boost small business in the area.

The bill not only protects the Rio Chama, but has been drafted to accommodate existing authorized uses of the river. It preserves the recreation, wildlife, wilderness and private land ownership rights now existing between El Vado Dam and Abiquiu Reservoir. It has no effect on the operation of either the allowed dam or flood control or water storage at Abiquiu Dam as currently authorized by law as of the date of enactment.

I am aware that the Governor and the Army Corps of Engineers have expressed some concern over the bill's possible effects on expanding the water storage at Abiquiu beyond the current authorized level. I am glad to see that the Corps will be testifying today, along with other witnesses, to address some of these concerns.

Let me just add that it is our intent in the House of Representatives and the Interior Committee to hold a hearing on this bill in September and pass the bill in the Interior Committee in September and pass the bill in the House of Representatives in late September or early October unless dramatic testimony changes the view today, unamended, as originally introduced by my colleague, Senator Bingaman.

Thank you.

Senator BINGAMAN. All right. Why don't we go ahead with the first panel?

The first panel is Larry Woodard, the State Director of the Bureau of Land Management; Lt. Col. Kent Gonser of the U.S. Army Corps of Engineers; Mr. Milanowski, who is the Deputy Forest Supervisor for Santa Fe National Forest; and Arnold Cassador, who is the representative of the Jicarilla Apache Tribe here, if you folks would come up and take a chair at the witness table.

Why don't we go ahead? What we'll try to do is to allow each member of the panel to summarize their testimony, and then we'll have some questions from myself and Senator Domenici and Congressman Richardson before we go to the next panel.

Larry, why don't you go ahead and start and give us your perspective as the State Director of the BLM?

STATEMENT OF LARRY WOODARD, STATE DIRECTOR, BUREAU OF LAND MANAGEMENT, DEPARTMENT OF THE INTERIOR, ACCOMPANIED BY TOM MOHL, TAOS RESOURCE SERIES, BUREAU OF LAND MANAGEMENT

Mr. WOODARD. Thank you, Senator.

I might say, as based on my testimony, that the administration has not yet formulated a formal position on this bill.

The BLM has been actively involved in the management of this stretch of the Chama since about 1980. We operate with a Memorandum of Understanding with the Forest Service. Our responsibility has been to permit boating on the wild segment, which is from El Vado down to Christ in the Desert Monastery.

We have experienced a dramatic rise in the recreational use from about 1,300 visitor days in 1980 now to 3,000 visitor days in 1986. We think that most of the increase in use has been the private use. The commercial outfitters that use the river will remain

somewhat level until such time as the river flow-release situation is clarified. They're having difficulty booking trips until that issue is resolved.

We believe that if regular releases were to occur, that we could anticipate 5,000 visitor days the first year, and it could go as high as 10,000 visitor days by the third year.

We are currently working under an Interim Recreation Management Plan that we have worked out with the Forest Service after extensive public hearings. We are completing this fall our Taos Recreation Management Plan, in which we are recommending in that plan that this be put in as a Wild and Scenic River.

We have received a lot of favorable publicity locally within the state since we have begun active management of this river in 1980. And with our colleagues in the Forest Service, as you have indicated earlier, this has been one of those late-summer recreation whitewater rivers which New Mexico has very few of.

We find that our management of another Wild and Scenic River—which, by the way, is the first in the nation—the Rio Grande, of course, by early summer, that whitewater experience has ended. But the Chama can continue later into the summer. And as you've indicated, it is one of those moderate rivers where the first-time rafter can get a good shot at it.

So, we feel that it is a very valuable water-based recreation river in the state that has very few opportunities, and we're delighted to participate today in this hearing.

[The prepared statement of Mr. Woodard follows:]

TESTIMONY RE: S. 850
RIO CHAMA WILD AND SCENIC RIVER BILL
PRESENTED BY LARRY WOODARD, STATE DIRECTOR
NEW MEXICO STATE OFFICE, BUREAU OF LAND MANAGEMENT

July 27, 1987

Good morning. My name is Larry Woodard. I am here today to represent the Department of Interior's Bureau of Land Management (BLM). My position is State Director for the BLM New Mexico State Office here in Santa Fe.

Although we do not have a formal position on the bill at this time, I would like to discuss the river with you and answer any questions you may have.

The BLM has been involved in management of the Rio Chama since 1980. Some of our early activities included determination of commercial and private visitor days, environmental impacts due to camping, and studies of fisheries as they related to discharges from El Vado Dam.

In 1984, our management efforts intensified through a revised Memorandum of Understanding (MOU) with the Santa Fe National Forest. This MOU divided the now proposed wild and scenic river area into two administrative areas. As a result of the MOU, the section above the "Christ in the Desert Monastery" at the end of Forest Service Road 151 is being managed by BLM. This area, which is proposed for "Wild" designation, contains a section of the river bordered by designated Forest Service Wilderness and a BLM Wilderness Study Area.

The MOU also provides for Forest Service management of the section below the Monastery. This area, which is now proposed for "Scenic" designation, is accessible by road and has been subject to intensive recreational use by both boating and land-based users.

The 1984 MOU required an Interim River Management Plan to be developed by both agencies to address management needs on the river. This Interim Plan has been guiding our joint management efforts since 1986.

During the period from 1980 to 1986, boating use on the BLM section of the Rio Chama has increased from 1,300 visitor days in 1980 to 3,000 visitor days in 1986. Peak weekend use (for example, Memorial Day Weekends) now exceeds 200 people launching each day. We feel this is maximum capacity for quality camping on the proposed "Wild" section to be managed by BLM.

Most of the significant increase in use appears to be among private users. Commercial use is expected to remain level until predictable flows during tourist season can be assured through regular and predictable releases. Such releases depend on cooperation amongst the water owners and managing agencies, and on the availability of downstream storage or water demand.

If and when regular releases occur, BLM can anticipate an increase to 5000 visitor days the first year and to 10,000 visitor days by the third year.

BLM is currently working on the Taos Resource Management Plan (RMP). The final plan is scheduled to be completed by September 30, 1987. The RMP assures protection of the valuable area as a Special Management Area. It also recommends designation of the public land from a point approximately 3 miles downstream from the El Vado Ranch put-in to the Forest Service boundary (which is approximately 13 miles downstream from the put-in) as a "Wild and Scenic River" area. This encompasses approximately 10 miles of river and about 2,000 acres of adjoining public lands.

New Mexico BLM has received much praise and publicity on its management of the Rio Chama during the past seven years. Our personnel are noted by the public for their expertise, helpfulness and skill, particularly in protection of the resource. Some of the agencies with which we have worked closely include the Forest Service, Bureau of Reclamation, Fish and Wildlife Service, Army Corps of Engineers, New Mexico's Department of Natural Resources and Game and Fish, the New Mexico State Engineer, the City of Albuquerque Water Resources Department, and the Middle Rio Grande Conservancy District.

In summary, the Rio Chama River is one of the most valuable water-based recreational areas on public lands in New Mexico. It is an important attraction for tourists and, thus, an important source of revenue for northern New Mexico communities.

The Department of Interior will be pleased to present its final recommendations to the Congress on this legislation afte we have completed our review of the bill.

Thank you for your attention.

Senator BINGAMAN. Thank you very much.

Colonel Gonser, as the duly appointed head of the Corps of Engineers here in the state—I know you have just taken on your responsibilities in the last week or two—we appreciate your being here very much and look forward to your testimony.

STATEMENT OF LT. COL. KENT GONSER, COMMANDER, ALBUQUERQUE DISTRICT, U.S. ARMY CORPS OF ENGINEERS, ACCOMPANIED BY JOHN CUNICO

Lieutenant Colonel GONSER. Thank you, sir.

Mr. Chairman and members of the Committee, it is a pleasure to have the opportunity to testify on the proposed Wild and Scenic Designation for the Rio Chama. I am Lt. Col. Kent Gonser, the commander of the Albuquerque District Corps of Engineers. With me today is Mr. John Cunico to perhaps help with some of the questions.

As background, the Albuquerque District is one of the five Corps districts which fall under the Southwestern Division, which is headquartered in Dallas, Texas. The Albuquerque District is responsible for all the Corps' civil-works activity in New Mexico and portions of Colorado and Texas. These functions include the construction and operation of flood-control projects and other water resource activities.

The Corps recognizes the beauty of the Rio Chama between El Vado and Abiquiu Reservoirs and agrees that portions of it are wild and unique. We will defer, however, to the Departments of Agriculture and Interior on the merits of designation of this portion of the river as a component of the National Wild and Scenic River System.

The primary aspect of the bill which concerns the Corps of Engineers is the section from elevation 6,283.5 to elevation 6,353, which would have two agencies—the Bureau of Land Management and the Forest Service—and not the Corps of Engineers administering the Rio Chama within the limits of Abiquiu Reservoir and below the limits of the flood-control pool.

In operating Abiquiu Reservoir for its currently Congressionally authorized purpose of flood control, it would be unwise to have two different agencies, each with a mandate of managing a river under the Wild and Scenic Rivers Act, administering a river which is being controlled for flood protection by a third agency. Abiquiu Reservoir, in order to function as it was intended, needs to be controlled by one agency—the Corps of Engineers—operating within the existing laws and regulations in coordination with other interested parties to insure that the reservoir's management does not adversely impact the wild and scenic character of the river above the project.

We are also concerned that the bill would preempt future development at the Corps' project and would preclude the reallocation of existing reservoir capacity for storing water from flood control to water supply. The potential for reallocation may exist, because it was less costly to build the dam higher than to blast a spillway through solid rock down to the top of the flood-control pool.

When, as a result of better forecasting techniques and more extensive runoff records, the U.S. Weather Service increased the size of the probable maximum flood, we needed to, and last year did, modify Abiquiu Dam by raising it and widening the spillway so it could safely handle the larger maximum probable flood. The potential additional benefit that was created at this time as a result of the dam's safety work is that the reservoir may be able to permanently hold more water and still safely pass the probable maximum flood. This potential, however, has not been fully investigated.

We are not commenting on the merits of the Rio Chama being designated as a Wild and Scenic River. We are concerned, however, that the designation of the last four miles of the Rio Chama between the top of the flood-control pool and the top of the spillway, plus three feet for waves, would adversely affect the potential for added water supply.

We encourage the Committee to have a broad view of future water needs in New Mexico as this bill works its way through the legislative process.

In summary, we believe the Corps of Engineers, and not other agencies, should continue to operate and administer the flood-control pool below the elevation of 6,283.5, as it has since Abiquiu Reservoir was completed. This operation will continue in accordance with the guidelines and regulations established by Congress when it authorized Abiquiu Dam.

Moreover, Congress should consider changing the lower elevation of the designation of Wild and Scenic from 6,283.5, which is the top of the current flood-control pool, to 6,353, which is the level of the spillway crest, plus three feet. This designation would allow reallocation of storage of water for water supply, should this be shown to be feasible at some time in the future. The Corps of Engineers feels that any designation from 6,353 to 6,283.5 would effectively eliminate the potential for the reservoir for any additional beneficial uses in the future.

Once again, thank you for the opportunity to testify on this proposed legislation.

[The prepared statement of Lt. Col. Gonser follows:]

TESTIMONY FOR THE

CONGRESSIONAL HEARINGS ON THE RIO CHAMA

WILD AND SCENIC RIVER BILL (S. 850)

BY

LIEUTENANT COLONEL KENT GONSER

COMMANDER, ALBUQUERQUE DISTRICT

U.S. ARMY CORPS OF ENGINEERS

SANTA FE, NEW MEXICO

July 27,1987

Mr. Chairman, members of the Committee, it's a pleasure to have the opportunity to testify on the proposed Wild and Scenic designation for the Rio Chama. I am Lieutenant Colonel Kent Gonser, the commander of the Albuquerque District of the U.S Army Corps of Engineers. Accompanying me today is John Cunico, Chief of the Design Branch of the Albuquerque District.

As background, the Albuquerque District is one of five Corps Districts which fall under the Corps Southwestern Division headquartered in Dallas, Texas. The Albuquerque District is responsible for all Corps civil works activities in New Mexico and portions of Colorado and Texas. These functions include the construction and operation of flood control projects and other water resources activities. In addition to our traditional civil works mission, last year we also assumed responsibility for all military construction in New Mexico except White Sands Missile Range. The Albuquerque District also provides engineering and construction support to other agencies, principally the Department of Energy. This briefly is the mission of the Albuquerque District.

The Corps of Engineers recognizes the beauty of the Rio Chama between El Vado and Abiquiu Reservoirs and agrees that portions of it are wild and unique. We will defer to The Departments of Agriculture and Interior on the merits of designation of this portion of the river as a component of the National Wild and Scenic River System.

The primary aspect of the bill which concerns the Corps of Engineers

is the section which would have two agencies, the Bureau of Land Management and the Forest Service, and not the Corps of Engineers, administer the Rio Chama within the limits of Abiquiu Reservoir, below the limits of the flood control pool. In operating Abiquiu Reservoir for its currently congressionally authorized purpose of flood control, it would be unwise to have two different agencies, each with a mandate for managing the river under the Wild and Scenic Rivers Act, administering a river which is being controlled for flood protection by a third agency. Abiquiu Reservoir, in order to function as it was intended, needs to be controlled by one agency, the Corps of Engineers, operating within the existing laws and regulations in coordination with all interested parties to insure that the reservoir's management does not adversely impact the Wild and Scenic character of the river above the project.

We are also concerned that the Bill could pre-empt future development at the Corps project and would preclude the reallocation of existing reservoir capacity for storing water from flood control to water supply. The potential for reallocation may exist because it was less costly to build the dam higher than to blast a spillway through solid rock down to the top of the flood control pool. When, as a result of better forecasting techniques and more extensive runoff records, the U.S. Weather Service increased the size of the probable maximum flood, we needed to, and last year did, modify Abiquiu Dam by raising it and widening the spillway so it could safely handle the larger probable maximum flood. A potential additional benefit of this dam safety work is that the reservoir may be able to permanentiy hold more water and still be safe if the probable maximum flood were to occur. This potential, however, has not been fully

investigated.

We are not commenting on the merits of the Rio Chama being designated as a Wild and Scenic River. We are concerned, however, that the designation of the last four miles of the Rio Chama, between the top of the flood control pool and the top of the spillway plus three feet for waves, would adversely affect the potential for added water supply. We encourage the committee to have a broad view of future water needs in New Mexico as this bill works its way through the legislative process.

In summary, we believe the Corps of Engineers, and not other agencies, should continue to operate and administer the flood control pool below the elevation of 6283.5, as it has since Abiquiu Reservoir was completed. This operation will continue in accordance with the guidelines and regulations established by Congress when it authorized Abiquiu Dam. Moreover, Congress should consider changing the lower elevation for the designation of "Wild and Scenic" from 6283.5 (the top of the flood control pool) to 6353 (the level of the spillway crest plus three feet). This designation would allow reallocation of storage for water supply should this be shown to be feasible at some time in the future. The Corps of Engineers feels that any designation from 6353 to 6283.5 would effectively eliminate the potential to use Abiquiu Reservoir for any additional beneficial uses in the future.

The Administration will communicate final recommendations to Congress regarding designation of the Rio Chama as a component of the National Wild and Scenic River System upon completion of its review of this proposal.

Once again, thank you for the opportunity to testify on this proposed legislation.

Senator BINGAMAN. Thank you very much.

Next is "Ski" Milanowski, who is the Deputy Forest Supervisor for Santa Fe National Forest.

We're glad to have you.

STATEMENT OF N.V. "SKI" MILANOWSKI, DEPUTY FOREST SUPERVISOR, SANTA FE NATIONAL FOREST, FOREST SERVICE, DEPARTMENT OF AGRICULTURE

Mr. MILANOWSKI. Thank you, Mr. Chairman. Mr. Chairman and members of the Subcommittee, I am "Ski" Milanowski, Deputy Forest Supervisor of the Santa Fe National Forest. I am pleased to be here today to present background information about the Santa Fe National Forest land-management planning process as it relates to the Rio Chama River.

The Department of Agriculture has not yet developed a recommendation on S. 850, a bill that would designate part of the Rio Chama for inclusion in the National Wild and Scenic Rivers System, pending completion of the Santa Fe National Forest Plan.

The canyon of the Rio Chama between El Vado Dam and Abiquiu Reservoir encompasses an area of uncommon natural beauty, geologic formations, wildlife habitat and river recreation opportunities. The recreation activities which currently occur include whitewater rafting and canoeing, both by New Mexico residents and visitors to the state, often using the services of river outfitters. These activities have shown significant growth since 1980.

Recognizing the value of the Rio Chama as a recreation and natural resource, the Santa Fe National Forest recommended its designation as a Wild and Scenic River in its Proposed Forest Plan, released in January of 1986.

Extensive public comment and involvement regarding this Proposed Plan, including open houses in communities around northern New Mexico, written responses, public hearings and many informal discussions with concerned citizens, revealed the significant support for this recommendation. The U.S. Army Corps of Engineers and the New Mexico Interstate Stream Commission expressed concern about designation and its potential effect on future water storage.

The final forest plan and accompanying environmental impact statement, due for release later this summer, will provide our final recommendation concerning the designation of the Rio Chama River.

The lower portion of the river is the focus of the issues surrounding the Wild and Scenic River Designation. It contains some of the best whitewater rapids on the river. The lower portion of the river provides day-use boating preferred by many families. Longer, overnight trips are necessary when using the upper and lower portions of the river.

Inundation up to the spillway elevation of Abiquiu Dam would submerge the lower portion of the river and cut off the current access to private land and National Forest land in the lower canyon. Road relocation would be difficult because of the proximity of the Wilderness boundary.

On the other hand, we also recognize that long-range planning for water storage is important to many citizens of this arid region. Other acceptable alternatives for water storage may be few and costly. Our Final Forest Plan will seek to strike a balance between the two scarce Southwestern resources—free-flowing rivers and usable water.

I'll be happy to answer any additional questions.

Senator BINGAMAN. All right. Thank you very much.

Representing the Jicarilla Apache Tribe is Arnold Cassador, who is the assistant to Leonard Atole, who is the President.

Arnold, we're glad to have you here.

STATEMENT OF ARNOLD CASSADOR, ASSISTANT TO PRESIDENT LEONARD ATOLE, JICARILLA APACHE TRIBE, ACCOMPANIED BY LES TAYLOR, LAW OFFICES OF NORDAUS, HALTOM, TAYLOR, TARADASH & FRYE

Mr. CASSADOR. Thank you, Mr. Chairman and members of the Committee.

As you indicated, I'm here on behalf of President Atole and the citizens——

Senator BINGAMAN. You're not going to read this whole thing, are you, Arnold?

Mr. CASSADOR. I'm going to try to. I have three minutes.

Senator BINGAMAN. Well, you just have three pages. I see. It was the attachment that was scaring me.

Mr. CASSADOR. Mr. Chairman, I'm also here authorized by the Tribal Council to support S. 850.

As I stated, I'm here to give support to S. 850 and accompanying House bill, giving a stretch of the Rio Chama Federal Wild and Scenic River status. I have also with me Les Taylor of Nordaus, Haltom to answer any questions for you this morning.

The interest of the Jicarilla Apache Tribe in supporting S. 850 is two-fold. First, the Jicarilla Apache Tribe is the beneficial owner of trust lands which border the river from El Vado Dam downstream for a stretch of approximately three miles on the west side of the river.

Secondly, the Jicarilla Apache Tribe is concerned that virtually all of the water diverted through the San Juan-Chama Project for storage for future beneficial use will spill or evaporate.

With regard to the lands of the Jicarilla Apache Tribe which border the Rio Chama, the Congressional delegation must know that the Jicarilla Apache Tribe is concerned about protecting the Reservation environment, and sees S. 850 as protection of that environment.

Those prohibitions contained in the Wild and Scenic Rivers Act do not interfere with the Tribe's use of this portion of its trust lands. Of concern to the Tribe is the continued storage of water diverted through the San Juan-Chama Project, one-half of which is coming from the only perennial river of the Reservation, which is not being put to beneficial use as contemplated by the Prior Appropriation Doctrine, the San Juan-Chama Project Act, the Upper Colorado River Basin Compact, and numerous other Acts of Congress.

In the late 1970s and early 1980s, the Jicarilla Apache Tribe challenged the right of the Bureau of Reclamation under the above Acts to divert water through the San Juan-Chama Project in excess of amounts which could be beneficially used on the east side of the Continental Divide. The facts found at trial and supported by the evidence were that the City of Albuquerque, by its own projection, would not need its annual allocation of 48,200 acre-feet until the year 2025. The difference between what the City needs and the amount authorized for diversion until the year 2025 would be 1,121,000 acre-feet of excess water. It was further found that the storage of this excess for 40 years, until needed by the City, would result in 93 percent of the water being lost through evaporation.

Despite the 10th Circuit Court of Appeal's determination that the storage of water was not permitted by the San Juan-Chama Project Act and the overwhelming and, indeed, disgraceful loss of that water through evaporation, Congress saw fit to enact legislation which authorized the storage of the City's excess water in Abiquiu and Elephant Butte Reservoirs. Now it is urged by some that the legislation should not be enacted or should be amended in some way to enable the Corps of Engineers to expand the storage capabilities of Abiquiu Reservoir so that the City may, in the future, store additional water. Congress apparently already legislated that the evaporation of the City of Albuquerque's stored water is to be considered a beneficial use of water in the state of New Mexico, contrary to the precepts of the Prior Appropriation Doctrine and the Beneficial Use Concept.

To deny this legislation for the reason that the option should remain available to expand the capacity of Abiquiu Reservoir so that additional San Juan-Chama water can be stored there for future evaporation makes no sense. [General laughter.]

Senator BINGAMAN. This is going to a long hearing even without the applause, so I would appreciate it if you would just make do with the testimony. Thanks.

Go ahead, Arnold.

Mr. CASSADOR. Okay. There is adequate storage available for San Juan-Chama water for present and foreseeable future needs. It is time to pay attention to the state of New Mexico's environment and to begin to wisely use the limited water resources available within the state.

The Jicarilla Apache Tribe strongly urges the New Mexico Congressional delegation to support S. 850 as currently introduced in the Congress of the United States.

Thank you. [Applause.]

[The attachment to the statement of Mr. Atole follows:]

circumstances herein. It is the conduct of the state defendants that has been the focus of this litigation (i. e., the hearing held by the state defendants, the commitment of the state defendants to a specific location prior to the hearing, the compliance or noncompliance with PPM 20-8 of the state defendants, etc.). In contrast, the significance of the federal defendants' involvement has basically only been in having granted approval to the state defendants. As such, probably at least 75% of plaintiffs' counsel's preparation dealt with the state defendants, as opposed to the federal defendants.

State defendants alternatively appeal the 25% "estimate" used by the court, claiming that a more precise method should have been used. Although it is possible that the court could have found a more precise method of reducing the award, given the intertwining nature of the claims against the federal and state defendants, this court defers to the discretion of the district court and finds the 25% figure to be fair and within the bounds of reasonableness.

V. ADJUSTMENT OF FEES FOR INFLATION

[10] The issue of whether the award of attorney fees should be adjusted to account for inflation was first raised in plaintiffs' post-argument supplemental brief. We therefore decline to consider it. *See Ellingson v. Burlington Northern, Inc.*, 653 F.2d 1327 (9th Cir. 1981).

VI. FEES FOR SERVICES RENDERED ON APPEAL

Plaintiffs pray for costs and attorneys fees expended in making this appeal.

[11] 42 U.S.C. § 1988 authorizes the grant of attorneys fees for services on appeal. *Hutto v. Finney*, 437 U.S. 678, 98 S.Ct. 2565, 57 L.Ed.2d 522 (1978). Furthermore, attorneys fees may be awarded for time devoted in successfully defending appeals of or challenges to the district court's award of attorneys fees. *Stanford Daily v. Zurcher*, 64 F.R.D. 680 (N.D.Cal.1974), affirmed, 550 F.2d 464 (9th Cir. 1977), reversed on other grounds, 436 U.S. 547, 98 S.Ct. 1970, 56 L.Ed.2d 525 (1978).

> It would be inconsistent with the purpose of the Fees Act to dilute a fees award by refusing to compensate the attorney for the time reasonably spent in establishing and negotiating his rightful claim to the fee.

Lund v. Affleck, 587 F.2d 75 at 77 (1st Cir. 1978).

Plaintiffs herein are entitled to fees and costs for their successful defense to defendants' appeal. Costs and fees are not recoverable, however, for plaintiffs' unsuccessful appeal of the twenty-five percent (25%) reduction of the initial fee award or their claim of fees under the common fund/common benefit theory.

The matter is remanded to the district court to determine the reasonable fee for this appeal.

JICARILLA APACHE TRIBE,
Plaintiff-Appellee,

v.

UNITED STATES of America, Cecil Andrus, Secretary of the Interior of the United States of America,

and

City of Albuquerque, New Mexico, and State of New Mexico ex rel., Interstate Stream Commission, Intervenors-Appellants.

Nos. 80-1704, 80-1705 and 80-1759.

United States Court of Appeals, Tenth Circuit.

Argued May 29, 1981.

Decided July 29, 1981.

Suit to obtain a general adjudication of water rights on the Navajo River and its

tributaries in New Mexico was dismissed for lack of jurisdiction. The Court of Appeals, 601 F.2d 1116, upheld dismissal relative to adjudication of water rights, but remanded case for trial on question of alleged illegal diversion. On remand, complaint was amended to obtain a declaration that a water storage agreement between the Bureau of Reclamation and the city of Albuquerque was invalid. The United States District Court for the District of New Mexico, H. Vearle Payne, J., entered judgment declaring agreement invalid, and the city appealed. The Court of Appeals, William E. Doyle, Circuit Judge, held that: (1) storage by city of Albuquerque of water from San Juan-Chama Project in Elephant Butte Reservoir for eventual resale, electrical power, and future municipal use did not constitute a "beneficial use" under New Mexico permit system of prior appropriation; (2) use of water for recreation purposes, even if recognized as beneficial under New Mexico law, was at odds with federal statutes authorizing use only when accompanied by a primary authorized use; (3) federal statutes do not prohibit storage of project water by contract purchasers after delivery but such storage must be pursuant to authorized uses of project water; and (4) agreement whereby the United States, acting through the Bureau of Reclamation, allowed the city of Albuquerque to store part or all of its water from the San Juan-Chama Project in the Elephant Butte Reservoir was contrary to state and federal law and, hence, was invalid.

Affirmed.

1. Federal Courts ⇐433

State law governs the distribution of water from federal projects unless Congress expresses a different approach. 43 U.S.C. (1970 Ed.) §§ 615, 620c; NMSA 1978, § 72-1-2; N.M.Const. Art. 16, § 3; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

2. Waters and Water Courses ⇐133

The determination of beneficial use, the concept of which is expressed in language similar to that of the Reclamation Act in the New Mexico permit system of prior appropriation, is a question of fact. 43 U.S.C. (1970 Ed.) §§ 615, 620c; NMSA 1978, § 72-1-2; N.M.Const. Art. 16, § 3; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

3. Waters and Water Courses ⇐127

The state controls the use of water because it does not part with ownership, but only allows a usufructuary right to water. 43 U.S.C. (1970 Ed.) §§ 615, 620c; NMSA 1978, § 72-1-2; N.M.Const. Art. 16, § 3; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

4. Waters and Water Courses ⇐144

Utilization for maximum benefits is a requirement second to none in determining whether water is being used for a beneficial use under New Mexico permit system of prior appropriation. NMSA 1978, § 72-1-2; N.M.Const. Art. 16, § 3.

5. Waters and Water Courses ⇐144

Storage of water for municipal use is recognized as necessary to beneficial use under New Mexico permit system of prior appropriation. NMSA 1978, § 72-1-2; N.M.Const. Art. 16, § 3.

6. Waters and Water Courses ⇐152(8)

Finding that storage by city of Albuquerque of water from San Juan-Chama Project in Elephant Butte Reservoir for purposes of exchange was unreasonable under circumstances and did not constitute a "beneficial use" under New Mexico permit system of prior appropriation was not clearly erroneous. 43 U.S.C. (1970 Ed.) §§ 615, 620c; NMSA 1978, § 72-1-2; N.M.Const. Art. 16, § 3; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

See publication Words and Phrases for other judicial constructions and definitions.

7. Waters and Water Courses ⇐144

Water may be used beneficially by a city under New Mexico permit system of prior appropriation through sales to other water users. NMSA 1978, § 72-1-2; N.M. Const. Art. 16, § 3.

8. Waters and Water Courses ⇐144

A "beneficial use" under New Mexico permit system of prior appropriation was not established by city of Albuquerque by its storage of water from San Juan-Chama Project in Elephant Butte Reservoir on mere hopes of possible sales in future. 43 U.S.C. (1970 Ed.) §§ 615, 620c; NMSA 1978, § 72–1–2; N.M.Const. Art. 16, § 3; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

9. Waters and Water Courses ⇐135

City of Albuquerque had a reasonable time to develop a use for its share of water from San Juan-Chama Project and to perfect its appropriation under New Mexico permit system, but that right was not unlimited and it could not divert water which looked to future negotiation for various beneficial uses. 43 U.S.C. (1970 Ed.) §§ 615, 620c; NMSA 1978, § 72–1–2; N.M. Const. Art. 16, § 3; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

10. Waters and Water Courses ⇐135

The reasonable time for a city to develop use for water under New Mexico permit system of prior appropriation relates back to date of showing an intent to appropriate by acquiring a permit and, until city can apply water, it cannot be said to have a beneficial use. 43 U.S.C. (1970 Ed.) §§ 615, 620c; NMSA 1978, § 72–1–2; N.M.Const. Art. 16, § 3; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

11. Waters and Water Courses ⇐133

It is essential that there be a beneficial use of water which is more than speculative under New Mexico permit system of prior appropriation. NMSA 1978, § 72–1–2; N.M.Const. Art. 16, § 3.

12. Waters and Water Courses ⇐133

The Bureau of Reclamation could not deliver water from the San Juan-Chama Project to the city of Albuquerque under a plan which was nothing more than speculative with respect to the beneficial use of the water. 43 U.S.C. (1970 Ed.) §§ 615, 620c.

13. Waters and Water Courses ⇐

Neither economics nor storage of water is relevant to the beneficial use concept under the New Mexico permit system of prior appropriation. NMSA 1978, § 72–1–2; N.M.Const. Art. 16, § 3.

14. Waters and Water Courses ⇐144

Loss of water stored due to evaporation, with resulting generation of relatively small amounts of power, coupled with an absence of evidence of any contracts, negotiations, or plans to sell an increased output of electricity, was adequate to support determination that power generation was too wasteful and speculative to constitute a "beneficial use" under New Mexico permit system of prior appropriation for storage by city of Albuquerque of water from San Juan-Chama Project in Elephant Butte Reservoir. 43 U.S.C. (1970 Ed.) §§ 615, 620c; NMSA 1978, § 72–1–2; N.M. Const. Art. 16, § 3; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

15. Waters and Water Courses ⇐144

Fact that city of Albuquerque was a municipality in New Mexico did not mean that every use to which it put its water thereby became a municipal use and, hence, was not a basis for establishing that storage of water from the San Juan-Chama Project in the Elephant Butte Reservoir constituted a "beneficial use" under the New Mexico permit system of prior appropriation. 43 U.S.C. (1970 Ed.) §§ 615, 620c; NMSA 1978, § 72–1–2; N.M.Const. Art. 16, § 3; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

16. Federal Courts ⇐433

Requirements of state law govern distribution of water for federal reclamation projects unless specifically overridden by congressional mandate or directives. 43 U.S.C. (1970 Ed.) §§ 615, 620c; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

17. Waters and Water Courses ⇐144

Nothing in statutes nor in legislative history indicates that Congress intended to authorize uses of water otherwise prohibited under state law. 43 U.S.C. (1970 Ed.)

§§ 615, 620c; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

18. Waters and Water Courses ⇐144

Use for recreation purposes by city of Albuquerque of water from San Juan-Chama Project, even if recognized as beneficial under New Mexico permit system of prior appropriation, was at odds with federal statutes authorizing use only when accompanied by a primary authorized use. 43 U.S.C. (1970 Ed.) §§ 615, 620c; NMSA 1978, § 72-1-2; N.M.Const. Art. 16, § 3; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

19. Waters and Water Courses ⇐132

The Secretary of the Interior may not, consistent with the Reclamation Act, knowingly release water to an individual or entity for use which is not recognized as beneficial under state law unless its use is specifically authorized by a congressional directive. Reclamation Act of 1902, § 8, 43 U.S.C.A. § 372.

20. Waters and Water Courses ⇐144

Congress can and generally does restrict uses to which water which is released from federal reclamation projects can be applied. Reclamation Act of 1902, §§ 5, 8, 43 U.S.C.A. §§ 431, 372, 383; Reclamation Project Act of 1939, § 9, 43 U.S.C.A. §§ 485h, 485h(c).

21. Waters and Water Courses ⇐132

Recreation itself is not a primary purpose under statute requiring the Secretary of the Interior to make water areas created by participating projects in the Colorado River Storage Project consistent with the primary purpose of the participating projects. Colorado River Storage Project Act, § 8, 43 U.S.C.A. § 620g.

22. Waters and Water Courses ⇐132

Principal uses of the water from the San Juan-Chama Project are to be municipal, domestic, industrial and irrigation and, though the governing statute expresses the intention that the water provide recreation and fish and wildlife benefits, such benefits are not intended to be primary, but are intended to be incidental. 43 U.S.C. (1970 Ed.) § 615pp.

23. Waters and Water Courses ⇐144

A beneficial user of water from the San Juan-Chama Project may not use such water for any purpose recognized as beneficial under state law, but must use water for such purpose as is authorized by Congress. 43 U.S.C. (1970 Ed.) § 615pp.

24. Waters and Water Courses ⇐144

Storage of water from the San Juan-Chama Project solely for recreational purposes is not authorized. 43 U.S.C. (1970 Ed.) § 615pp.

25. Waters and Water Courses ⇐144

Statutory limitation on recreation, fishing and wildlife with respect to use of waters from San Juan-Chama Project is not properly understood as a congressional effort to require reimbursement of project costs and, hence, may not be construed as allowing use solely for recreation and wildlife once water is delivered to a contract purchaser. 43 U.S.C. (1970 Ed.) § 615pp.

26. Waters and Water Courses ⇐132

Recreation and fish and wildlife benefits are merely incidental to primary uses of water from San Juan-Chama Project. 43 U.S.C. (1970 Ed.) § 615pp.

27. Waters and Water Courses ⇐144

Recreation use of water from San Juan-Chama Project, when provided by a city, is not a municipal use of that water and, hence, is not a basis for authorizing storage of that water as an authorized primary use. NMSA 1978, § 3-27-1; 43 U.S.C. (1970 Ed.) § 615pp.

28. Waters and Water Courses ⇐144

Large-scale allocations of water from San Juan-Chama Project to strictly recreational use was not intended to be included in term "municipal" as used in federal statute. 43 U.S.C. (1970 Ed.) § 615pp.

See publication Words and Phrases for other judicial constructions and definitions.

29. Waters and Water Courses ⇐133

The Bureau of Reclamation could not validly contract to deliver water to city of

Albuquerque from the San Juan-Chama Project on terms that were outside their authorization by Congress. 43 U.S.C. (1970 Ed.) § 615pp.

30. Waters and Water Courses ⇐144

Knowledge of Congress that there was an excess of water from the San Juan-Chama Project over and above needs of city of Albuquerque did not impliedly authorize the city of Albuquerque to make any use of the water considered by it to be an official use under state law. NMSA 1978, §§ 72-1-1 to 72-13-12; 43 U.S.C. (1970 Ed.) § 615pp.

31. Waters and Water Courses ⇐133

Provision of Water Supply Act of 1958 authorizing storage as a part of any reservoir project surveyed, planned, and constructed to impound water for present or anticipated future demand or need for municipal or industrial water does not authorize contracts to be entered into to store water solely for recreational purposes. Water Supply Act of 1958, § 301, 43 U.S.C.A. § 390b.

32. Waters and Water Courses ⇐144

Even if provision of Water Supply Act of 1958 authorizing impoundment for storage purposes may be read as permitting storage by a municipality for any purpose, specific terms and limitations of the San Juan-Chama Project Act override conflicting authority in the provision. Water Supply Act of 1958, § 301, 43 U.S.C.A. § 390b; 43 U.S.C. (1970 Ed.) §§ 615, 620c.

33. Waters and Water Courses ⇐144

Provision of the Federal Water Project Recreation Act authorizing consideration of opportunities for recreation and wildlife enhancement, assuming it applied to waters in the San Juan-Chama Project, did not suggest that specific limitations on use of project water should be ignored in favor of recreation or wildlife and did not authorize storage solely for recreational purposes. Federal Water Project Recreation Act, § 1, 16 U.S.C.A. § 460*l*-12.

34. Waters and Water Courses ⇐144

Storage of water from the San Juan-Chama Project at the Elephant Butte Reservoir for purposes which are congressionally authorized and which constitute beneficial uses under state law is not violative of the San Juan-Chama Project Act. Colorado River Storage Project Act, §§ 1, 8, 43 U.S.C.A. §§ 620, 620g; 43 U.S.C. (1970 Ed.) §§ 615ii, 615pp et seq.

35. Waters and Water Courses ⇐144

The San Juan-Chama Project Act, passed in order to provide authorization because water was to be released without a contract and for use for solely recreational purposes, does not contain inference that water received by contract purchasers was not to be stored at Elephant Butte Reservoir for municipal, industrial or irrigation purposes. Colorado River Storage Project Act, §§ 1, 8, 43 U.S.C.A. §§ 620, 620g; 43 U.S.C. (1970 Ed.) §§ 615ii, 615pp et seq.

36. Waters and Water Courses ⇐144

San Juan-Chama Project Act was not intended to prohibit storage of project water by contract purchasers after delivery, but was intended to allow storage pursuant to authorized uses of project water. Colorado River Storage Project Act, §§ 1, 8, 43 U.S.C.A. §§ 620, 620g; 43 U.S.C. (1970 Ed.) §§ 615ii, 615pp et seq.

37. Waters and Water Courses ⇐144

Storage of water from San Juan-Chama Project in Elephant Butte Reservoir is not prohibited so long as it is not solely for recreational purposes. 43 U.S.C. (1970 Ed.) § 615pp.

38. States ⇐4.12

The United States is subject to the requirement of state law regarding distribution of water unless those requirements are inconsistent with applicable federal law.

39. Waters and Water Courses ⇐144

City of Albuquerque could not store excess water from the San Juan-Chama Project at the Elephant Butte Reservoir inasmuch as the permit of the United States did not authorize storage of large quantities of water by contract purchasers

for purely recreational use and, in any event, could not authorize any use of water not recognized as beneficial under New Mexico law. 43 U.S.C. (1970 Ed.) §§ 615, 620c; NMSA 1978, § 72-1-2; N.M.Const. Art. 16, § 3; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

40. Waters and Water Courses ⇐144

Contract whereby the United States, acting through the Bureau of Reclamation, allowed the city of Albuquerque to store its water from the San Juan-Chama Project in the Elephant Butte Reservoir for resale, future municipal use, electrical power, and recreation was invalid inasmuch as contemplated use was not a "beneficial use" under law of New Mexico and, even if recognized as a beneficial use, was at odds with federal statutes. 43 U.S.C. (1970 Ed.) §§ 615, 620c; NMSA 1978, § 72-1-2; N.M.Const. Art. 16, § 3; Reclamation Act of 1902, § 8 et seq., 43 U.S.C.A. § 372 et seq.

Martin Green, Dept. of Justice, Washington, D. C. (Richard A. Simms and V. Henry Rothschild, Sp. Asst. Attys. Gen., Santa Fe, N. M., for intervenor-appellant State of N. M., Malcolm W. deVesty and Barbara Stephenson, Asst. City Attys., Albuquerque, N. M., for intervenor-appellant City of Albuquerque, with him on the brief), for defendants-appellants and intervenors-appellants.

Robert J. Nordhaus and Lester K. Taylor, Nordhaus, Haltom & Taylor, Albuquerque, N. M., for plaintiff-appellee.

Before DOYLE and SEYMOUR, Circuit Judges, and BOHANON,* District Judge.

WILLIAM E. DOYLE, Circuit Judge.

This action was originally filed by the Jicarilla Apache Tribe in the year 1975. The object of the suit was to obtain a general adjudication of water rights on the Navajo River and its tributaries in the State of New Mexico. The tribe also sought an injunction prohibiting alleged illegal diversions on the Navajo River by the Secretary of the Interior pursuant to the San Juan-Chama Project Act, 43 U.S.C. 615 *et seq.* (1976).

In July 1977 the district court ordered the case dismissed for lack of jurisdiction on the basis that a water right adjudication of the entire San Juan River system, including the Navajo River, was already pending in state court. This court upheld the dismissal relative to the adjudication of water rights, but remanded the case for trial of the question of alleged illegal diversion from the Navajo. *Jicarilla Apache Tribe v. United States*, 601 F.2d 1116 (10th Cir.), *cert. denied*, 444 U.S. 995, 100 S.Ct. 530, 62 L.Ed.2d 426 (1979).

During the pendency of the mentioned appeal, the Bureau of Reclamation [1] signed an agreement with the City of Albuquerque under which the Bureau agreed to deliver all of the city's share of the San Juan-Chama Project water for storage in Elephant Butte Reservoir. Thereupon, the tribe amended its complaint and the action was changed to one in which the tribe sought a declaratory judgment that the agreement between the Bureau and the City was void and contrary to law. The City of Albuquerque and the State of New Mexico, ex rel. Interstate Stream Commission, were allowed to intervene.

At the second trial the issues were limited to the following:

(a) Whether storage by Albuquerque of San Juan-Chama water in Elephant Butte would constitute a beneficial use;

(b) Whether the agreement for storage by the City was authorized by Congress; and

(c) Whether the City was required to obtain a permit from the New Mexico State Engineer for such storage.

* Honorable Luther L. Bohanon, Senior Judge, U. S. District Court, Oklahoma City, Oklahoma, sitting by designation.

1. The Bureau of Reclamation's name has been changed to the Water and Resources Services, but to be consistent with the earlier judicial determinations, the old designation will be used in this opinion.

The trial court found for the defendants on the first issue, but for the plaintiffs on the second and third issues. The agreement was, therefore, declared invalid. The identical issues which were tried below are presented here on appeal by defendants.

The San Juan-Chama Project diverts water from the Navajo River in Colorado. The Navajo River flows from Colorado into New Mexico through the Jicarilla Reservation and back into Colorado to eventually join the San Juan River, a tributary of the Colorado River. Diverted water is carried through tunnels under the Continental Divide and proceeds into Heron Reservoir. This reservoir is located on a small tributary to the Rio Chama. The Rio Chama runs into the Rio Grande. Albuquerque is on the Rio Grande about 100 miles downstream from Heron Reservoir. Elephant Butte Reservoir is about 150 miles downstream from Albuquerque on the Rio Grande. Appended to this opinion is a map which was prepared by the parties.

Since 1907 New Mexico has been one of those states which have adopted the permit system of prior appropriation to determine priority for use of water. 72–1–1 to 72–13–12, NMSA (1978). On most New Mexico sources of water all the rights to use reliably available natural water have been acquired. This is true of the Rio Grande drainage system in the state.

Albuquerque is a rapidly growing metropolitan city which meets its inhabitants' water needs by pumping from wells in the Rio Grande River Basin. Because of the hydrologic connection of the alluvial aquifer, any lowering of the water table caused by Albuquerque's pumping has a direct, although delayed, effect on the surface and underground water downstream on the Rio Grande. The long range predictions as to the population growth of Albuquerque and its water requirements to meet the needs of such growth show that by the late 1980's or early 1990's the effect of ground water diversion by the City on the Rio Grande will exceed its presently vested rights in the natural water. These vested rights amount to 18,700 acre feet annually.

The anticipated shortage of water available to Rio Grande appropriators was realized at an early date. To meet their needs, Albuquerque, Rio Grande Valley irrigators and the State of New Mexico convinced Congress that a need existed to build a system for importing more water into the Rio Grande valley. In 1966 Congress authorized the San Juan-Chama Project for "municipal, domestic and industrial uses, and for providing recreation and fish and wildlife benefits." 43 U.S.C. 615 *et seq.* (1976).

The plan was carried out on a smaller scale than was originally planned. As its share, Albuquerque contracted to receive 17,700 acre feet of water per year through 1981 as measured at the outlet of Heron Reservoir, and 48,200 acre feet per year thereafter. As required by reclamation law, the contract contains a further provision that the City has to repay the federal government with interest, the portion of the project construction costs allocated to the City's water supply, along with annual operation and maintenance charges. This requires the City to pay fifty annual installments of approximately one million dollars each, regardless of whether the contract water is actually utilized by the City. This sizeable overhead shows why the City wishes to take advantage of any use that is available so as to help offset the costs. The City's position is found on page 8 of the July 8, 1970 Report to the City Commission from the Albuquerque Resources Committee:

> It should be stressed that the city's obligations under the diversion contract begins [sic] in 1972, regardless of whether or not the city can use the water. Under terms of the contract no water will be distributed unless it is put to beneficial use on this side of the divide. Under no circumstances should the city's water be allowed to flow down the Colorado to be used in other states.

At the time of the trial of this case seven other entities had contracted with the Secretary of the Interior for San Juan-Chama water, but Albuquerque will eventually be the largest user.

Starting in 1982 Albuquerque will be authorized to put to beneficial use 48,200 acre feet of project water annually. The basic facts which were found at the trial and supported by the evidence are that the City will not need for municipal use its full 48,200 acre feet until the year 2025, but, of course, will need steadily increasing yearly amounts until then. By its own projection, based on the difference between its needs and the amount authorized, Albuquerque, in effect, will have 1,121,900 acre feet of "excess" water. It is not argued that the City, or a lessee of the City's right, may not take delivery if it can put the water to beneficial use. It is the delivery of this "excess" for the use which the City proposes which is in dispute.

One of the big disputes is that the provisions of the contract between Albuquerque and the government shows that Albuquerque plans to run the excess water, that which it cannot use, into Elephant Butte Reservoir. If this water remains stored with the annual excess added to storage for the 40 years until it is needed by the city population, 93% of all the water stored will be lost to evaporation. The City contends, however, that the stored water will be put to several beneficial uses: present sales to beneficial users; exchanges with other beneficial users for return when the City's needs surpass the 48,200 acre feet; enhancement of power generation; municipal use; recreation. The City further argues that each of the planned uses is authorized by the San Juan-Chama Project Act and the plans do not require approval of the New Mexico State Engineer. But for the finding that recreation is a beneficial use, the trial court ruled against the City in all regards. We must consider and evaluate these contentions.

I.

[1-3] It generally can be said that state law governs the distribution of water from federal projects unless Congress expresses a different approach. *See California v. United States*, 438 U.S. 645, 98 S.Ct. 2985, 57 L.Ed.2d 1018 (1978).[2] The Reclamation Act of 1902, 43 U.S.C. § 372, *et seq.*, (1976), which is incorporated into the San Juan-Chama Project Act, 43 U.S.C. §§ 615 and 620c (1976), specifies that "beneficial use shall be the basis, the measure, and the limit of the right," to use the project water. The concept of beneficial use expressed in language similar to that of the Reclamation Act is contained in New Mexico's permit system of prior appropriation, N.M.Const. Act XVI § 3; 72-1-2 NMSA (1978), and the determination of beneficial use is a question of fact. *State ex rel Reynolds v. Rio Rancho Estates, Inc.*, 95 N.M. 560, 624 P.2d 502 (1981). The state controls the use of water because it does not part with ownership; it only allows a usufructuary right to water. *Holguin v. Elephant Butte Irrigation District*, 91 N.M. 398, 575 P.2d 88 (1977); *State ex rel Bliss v. Dority*, 55 N.M. 12, 225 P.2d 1007 (1950), app. dismd. 341 U.S. 924, 71 S.Ct. 798, 95 L.Ed. 1356 (1951).

What is the Meaning of Beneficial Use in the Present Context?

[4] Although the term "beneficial use" is not defined either in the New Mexico Constitution or Statutes, there are certain very important requisites of beneficial use which have been established by the New Mexico courts. The first of these is maximum utilization. This was first announced in the case of *Kaiser Steel v. W. S. Ranch Co.*, 81 N.M. 414, 467 P.2d 986 (1970). Although that case involved a private party's condemnation rights, the New Mexico court stated: "Our entire state has only enough water to supply its most urgent needs. Water conservation and preservation is of utmost importance. Its utilization for maximum benefits is a requirement second to none, not only for progress but for survival." 467 P.2d at 982. Maximum utilization then is a fundamental requirement which prevents waste of water.

2. Part II of this opinion discusses in detail the extent to which federal law has overridden state law in this particular case.

In *State ex rel. Erickson v. McLean*, 62 N.M. 264, 308 P.2d 983 (1957), the court considered again its discussion of the prevention of waste of water. This arose in a case in which the state sought to stop the continuous and uncontrolled flow of an artesian well which had been going for a number of years. The defendant argued that he was using the water for irrigation of grass and stock watering. The court responded as follows:

> [I]t is important to observe that, no matter how early a person's priority of appropriation may be, he is not entitled to receive more water than is necessary for his actual use. An excessive diversion of water, through waste, cannot be regarded as a diversion to beneficial use within the meaning of the Constitution. Article 16, §§ 1, 2 and 3, and [N.M.S.A. 72-1-2 (1978)]. Water, in this state, is too scarce, and consequently too precious, to admit waste.
>
> ....
>
> ... Water is too valuable to be wasted, either through an extravagant application for the purpose appointed or by waste by misapplication which can be avoided by the exercise of a reasonable degree of care to prevent loss, or loss of a volume which is greatly disproportionate to that actually consumed.
>
> ....
>
> ... Whatever right one has, even in his own, is subject to that established principle that his use shall not be injurious to the rights of others, or of the general public.... Nor can an appropriator take more water than he can beneficially use.

308 P.2d 987–89.

Our first inquiry must be the adequacy of Albuquerque's plans for beneficial use judged in the light of the foregoing principles and the foregoing facts as well.

Storage Looking To Future Sales

[5, 6] The City's first assertion is that it was error for the trial court to hold that the long period of storage for future municipal use in this case is unreasonable. They say storage for municipal use has always been recognized as necessary to beneficial use. *State ex rel State Engineer v. Crider*, 78 N.M. 312, 431 P.2d 45 (1967), *City and County of Denver v. Sheriff*, 105 Colo. 193, 96 P.2d 836 (1939). Albuquerque's eventual use of stored water for the municipality would not be direct but would involve heavier pumping by the city in exchange for release of water to appropriators downstream from Elephant Butte Reservoir. It was found by the trial court, that if the water was stored until then, there would be a loss of 93% to evaporation. If the loss figures are correct and the 1,121,900 acre feet which Albuquerque is claiming were stored, only 78,811 acre feet would remain, the rest would evaporate. If the City were to store less, by using some water for other purposes, there would be, in turn, less for future exchange. It is to be noted that there is no evidence that the City has agreements to deliver to others now water which it will exchange for other water in the future. There is no indication that the trial court was clearly erroneous in its factual finding that the storage of water for exchange is unreasonable under these circumstances and would not be considered as a beneficial use by New Mexico. *State v. Rio Rancho Estates, Inc.*, 95 N.M. 560, 624 P.2d 502 (1981); *State ex rel State Engineer v. Crider*, 78 N.M. 312, 431 P.2d 45 (1967).

[7, 8] The City contends further that it will be using the water beneficially through sales to other water users. Such a plan is certainly recognized as appropriate for the City. *Mathers v. Texaco, Inc.*, 77 N.M. 239, 421 P.2d 771 (1966); *Albuquerque Land and Irrigation Co. v. Gutierrez*, 10 N.M. 177, 61 P. 357 (1900), aff'd. 188 U.S. 545, 23 S.Ct. 338, 47 L.Ed. 588 (1903).[3] But Albuquerque's sales have been limited to about 700–800 acre feet annually. The Tribe argues

3. Of course, these beneficial uses would be under the same restrictions relating to the water's use as Albuquerque. *California v. United States*, 438 U.S. 645, 98 S.Ct. 2985, 57 L.Ed.2d 1018 (1978); *Ivanhoe Irrigation District v. McCracken*, 357 U.S. 275, 78 S.Ct. 1174, 2 L.Ed.2d 1313 (1958).

that this is due to the fact that irrigators cannot afford Albuquerque's water; Albuquerque must pay 63% of the cost of building the project whereas agricultural appropriators contracting directly with the Bureau will pay only 9.8% of the cost for nearly equal amounts of water going to each. Whether this economic reason is true or not is irrelevant here where the issue is whether the water is being put to beneficial use. Albuquerque could sell the water at a loss or even give it away without depriving it of its character as a beneficial use. We do not deny that Albuquerque could take the quantity authorized in order to provide its purchasers for beneficial use regardless of the economic results to the City. But it cannot take the water now with a mere hope of possible sales in the future, most of which sales are yet to materialize. *Colorado River Water Conservation District v. Vidler Tunnel Water Co.*, Colo., 594 P.2d 566 (1979); *Carlsbad Irrigation District v. Ford*, 46 N.M. 335, 128 P.2d 1047 (1942).

[9, 10] The United States argues that the City has a reasonable time to develop use for the water and to thus perfect its appropriation. This right, however, is not unlimited. The City cannot divert the water which looks to future negotiation for various beneficial uses. *Colorado River Water Conservation District v. Vidler Tunnel Water Co., supra.* The reasonable time for development, 72-5-6 and 72-5-28(C), NMSA (1978), relates back to the date of showing an intent to appropriate by acquiring a permit. Until the City can apply the water it cannot be said to have a beneficial use, nor, for that matter, a completed appropriation. *State ex rel State Engineer v. Crider*, 78 N.M. 312, 481 P.2d 45 (1967); *State ex rel. Reynolds v. Mendenhall*, 68 N.M. 467, 362 P.2d 998 (1961).

[11, 12] In sum, it is essential that there shall have been a beneficial use which is more than speculative. The Bureau cannot deliver the water to the City under a plan which is nothing more than speculative with respect to the beneficial uses.

Storage Looking to Added Power Generation

[13] The next argument of the City is that it has a beneficial use because its storage of the water in Elephant Butte Reservoir will increase the head of water available for electric power generation, thereby increasing the output for an unchanged amount of water passing through the turbines. The United States, the owner of the generating plant, seems to be willing to credit the City up to its annual 10 cent per acre foot Elephant Butte Reservoir storage fee from any revenues from power generation, which Albuquerque argues is a benefit to the City. The fact that the storage of water will, in effect, be free has absolutely no bearing on the determination of beneficial use. As noted above, neither economics nor storage is relevant to the beneficial use concept. The beneficial use under these circumstances is the generation of power for which the storage is allegedly necessary, but the use would be for the benefit of the United States rather than for Albuquerque.

[14] The record reveals that based on increasing the pool at Elephant Butte by 200,000 acre feet, power output will increase 16 kilowatts per acre foot in the summer, and 14.3 kilowatts per acre foot in the winter.[4] With an addition of 400,000 acre feet the increase would be 27.5 kilowatts per acre foot and 24.6 kilowatts per acre foot, respectively. Even if all of Albuquerque's water were to be diverted to the reservoir it would not bring the pool above 400,000 acre feet, and, due to evaporation, such a level would be maintainable only for a relatively short time. Two hundred thousand acre feet would be a more realistic amount and could be maintained for the entire 45 years. These pool sizes, however, fail to solve the problem. There remains the 93% loss of the water stored, and the result is generation of relatively small amounts of power. *State ex rel. Erickson v. McLean*, 62 N.M. 264, 308 P.2d 983 (1957).

4. Solely for purposes of putting this fact into common understanding, the power generated by the plant will, if it is all sold, increase revenues by only $86,000 per year.

This fact, coupled with the trial court's findings that there was no evidence of any contracts, negotiations, or plans to sell the increased output of electricity, is adequate support for the trial court's determination that power generation is too wasteful and speculative to constitute a beneficial use [5] under the state law.

To What Extent, if Any, is Recreation to be Regarded as a Beneficial Use?

The final point that the City has made is that the trial court was correct in finding that recreation is a beneficial use under New Mexico law. For this proposition both Albuquerque and the trial court rely on *State ex rel. State Game Commission v. Red River Valley Company*, 51 N.M. 207, 182 P.2d 421 (1945). That case reveals that the beneficial use being considered—fishing and boating—was relative to unappropriated public waters of the State of New Mexico. Even though the water in question was flooded behind a dam, the New Mexico Supreme Court referred to it several times in the course of the opinion as unappropriated. Nowhere in the opinion does the court hold that water may be validly appropriated for a recreational use, nor have the New Mexico courts cited the case for such a proposition. In fact, it does not appear that New Mexico has been faced with the question. However, in *Mimbres Valley Irrigation Co. v. Salopek*, 90 N.M. 410, 564 P.2d 615, 619, *affirmed, U. S. v. New Mexico*, 438 U.S. 696, 98 S.Ct. 3012, 57 L.Ed.2d 1052 (1978), while it does not commit itself, the court hints that it would give such a question serious consideration.

The issue before us as to whether water may be appropriated for recreation was not cross appealed. This fact causes difficulty in ruling on the issue. It is, of course, poor policy to rule on issues which are not properly before us. This question is resolved under federal law and this is discussed in detail in part II.

[15] The City along these same lines contends that because many Albuquerque residents use the Elephant Butte Reservoir for recreation, and can be expected to continue to use it, that the filling of the reservoir with San Juan-Chama water should be deemed as a municipal use, since such a use can be authorized by Congress. But merely changing the name of the plan does not alter the overwhelmingly obvious and undisputed fact that the water is intended to be used by Albuquerque for recreation. It does not follow from the fact that Albuquerque is a municipality that every use to which it puts the water thereby becomes a municipal use. The Congressional limitations on beneficial use cannot so easily be avoided. They must be considered and dealt with. *California v. United States*, 438 U.S. 645, 98 S.Ct. 2985, 57 L.Ed.2d 1018 (1978); *Ivanhoe Irrigation District v. McCracken*, 357 U.S. 275, 78 S.Ct. 1174, 2 L.Ed.2d 1313 (1958).

II

Consideration of Storage of Water for Recreation Purposes Under Federal Law

[16–18] We have concluded that storage of water by Albuquerque in Elephant Butte Reservoir for the purposes of eventual resale, electrical power and provision for municipal needs does not constitute beneficial use under New Mexico law, and as discussed more fully below, the requirements of state law govern the distribution of water from federal reclamation projects unless specifically overridden by congressional mandate or directives. Nothing in the statutes nor the legislative history indicates that Congress intended to authorize uses of water otherwise prohibited under state law. Because it is questionable under New Mexico state law, and unnecessary to the resolution of this law suit, we have not ruled on the question of whether the storage of water in Elephant Butte Reservoir solely

5. Under other circumstances, power generation most certainly can be a beneficial use of water in many states and, we assume, also in New Mexico. *Moore v. California Oregon Power Co.*, 22 Cal.2d 725, 140 P.2d 798 (1943); *City of Lodi v. East Bay Municipal Utility District*, 7 Cal.2d 316, 60 P.2d 439 (1936); *In re Hood River*, 114 Or. 112, 227 P. 1065 (1924).

for the purposes of recreation would constitute a beneficial use. We are satisfied, however, that such use of San Juan-Chama water by Albuquerque even if recognized as beneficial under state law would be at odds with the federal statutes authorizing the San Juan-Chama project.

A. *Applicable Federal Law—Acts of Congress and Decisions.*

The history of the Federal Reclamation Law, and especially the Reclamation Act of 1902 and subsequent supplemental legislation, need not be repeated here. See, *California v. United States*, 438 U.S. 645, 98 S.Ct. 2985, 57 L.Ed.2d 1018 (1978).

The remaining problem in this case is ascertainment of the proper functions of state and federal law as applied to the distribution of San Juan-Chama water. Section 8 of the 1902 Act, 43 U.S.C. § 383 provides in pertinent part:

> Nothing in * * * this title shall be construed as affecting or intended to affect or to in any way interfere with the laws of any state or territory relating to the control, appropriation, use or distribution of water used in irrigation, or any vested right acquired thereunder, and the Secretary of the Interior, in carrying out the provisions of such sections, shall proceed in conformity with such laws * * *.

The extent to which the Bureau of Reclamation is required by § 8 to defer to state law in administering reclamation projects has been considered on several occasions by the Supreme Court. Some of the earlier cases suggested that the United States was required to defer to state law only on the question of what water rights must be compensated for in the event that a federal reclamation project interfered with previously existing uses of water. *City of Fresno v. State of California*, 372 U.S. 627, 83 S.Ct. 996, 10 L.Ed.2d 28 (1963); *Dugan v. Rank*, 372 U.S. 609 (1963); *United States v. Gerlach Live Stock Co.*, 339 U.S. 725, 70 S.Ct. 955, 94 L.Ed. 1231 (1950). Federal law generally controlled distribution of reclamation project water. *State of Arizona v. State of California*, 373 U.S. 546, 589, 83 S.Ct. 1468, 1492, 10 L.Ed.2d 542 (1963); *Ivanhoe Irrigation District v. McCracken*, 357 U.S. 275, 291, 78 S.Ct. 1174, 1183, 2 L.Ed.2d 1313 (1958).

The above opinions have been modified and in some instances limited by the Supreme Court's decision in *California v. United States, supra.* In that case the Supreme Court found that under § 8, water rights needed for reclamation projects had to be acquired by the Secretary of the Interior in strict conformity with state law. "Second, once the waters were released from the Dam, their distribution to individual landowners would again be controlled by state law." 438 U.S. at 665, 667, 98 S.Ct. at 2996. However, the Court indicated that "state water law does not control in the distribution of reclamation water *if* inconsistent with other congressional directives to the Secretary." 438 U.S. at 668, n. 21, 98 S.Ct. at 2997, n. 21. (Emphasis in original.)

B. *Storage for Future Use, Electrical Power or Resale*

[19] *California v. United States* holds that, in general, state law will govern distribution and use of water after release from a federal reclamation project. Section 8 of the 1902 Act further provides that "... beneficial use shall be the basis, the measure and the limit" of rights to use of water from reclamation projects. 43 U.S.C. § 372. In our view, it is clear that the Secretary of the Interior may not, consistent with the Reclamation Act, knowingly release water to an individual or entity for a use which is not recognized as beneficial under state law, unless such use is specifically authorized by a congressional directive. By the same token, no one is entitled to receive water for a use not recognized as beneficial under state law.

We concluded above in Part I that Albuquerque's arguments regarding beneficial use for electrical power, resale and storage for future use do not agree with the law of New Mexico on these subjects. While each of these uses is, indeed, recognized as beneficial under state law, the application of water to be stored in Elephant Butte Reser-

voir to any of these purposes is too remote or speculative to constitute a beneficial use. Accordingly, storage for such purpose is prohibited unless a specific congressional authorization for such use is to be found. The appellants concede that there is no such authorization of uses not recognized by state law in any of the relevant statutory provisions. Nor have we discovered any such statutory provision. Accordingly, we have to conclude that Albuquerque may not receive delivery of water for storage at Elephant Butte for any of these purposes under either state or federal law.

C. *Storage for Recreational Use*

It was the trial court's conclusion that storage for recreational use can be classified from a technical standpoint as a beneficial use under the laws of the State of New Mexico. As noted previously, we are not as certain as the trial court that storage solely for recreational purposes can be considered a beneficial use under the laws of New Mexico, especially where so much of the stored water will be lost to evaporation, and will never be available for other beneficial uses. But assuming that such storage does indeed satisfy the requirements of New Mexico law, it is our view that the applicable federal statutes prohibit storage of San Juan-Chama water solely for recreational purposes, because it is out of harmony with the entire basic philosophy of this project, if for no other reason.

From the very beginning of the reclamation program, Congress has restricted the use of water released from reclamation projects. Section 8 of the 1902 Act, which has been referred to previously, provides that "the right to the use of water acquired under the provisions of this title shall be appurtenant to the lands irrigated, and beneficial use shall be the basis, the measure and the limit of the right." 43 U.S.C. § 372. Section 5 of the 1902 Act, 43 U.S.C. § 431, prohibits the sale of water to tracts of land in excess of 160 acres. These sections are exceptions to the general rule of § 8 that state law controls the appropriation, use or distribution of water. *California v. United States*, *supra*, 668, n. 21, 98 S.Ct. 2997, n. 21; *Ivanhoe Irrigation District v. McCracken*, *supra*. Originally the federal reclamation laws made provision only for water to be used in irrigation; Section 8 itself states that state law governs appropriation, use or distribution *of water used in irrigation*.

[20] The present law, as exemplified by 43 U.S.C. § 485h, authorizes the Secretary of the Interior to undertake projects for purposes other than the provision of water for irrigation. However, § 485h(c) states in part that "No contract relating to municipal water supply or miscellaneous purposes or to electric power or power privileges shall be made unless, in the judgment of the Secretary, it will not impair the efficiency of the project for irrigation purposes." In *City of Fresno v. State of California*, *supra*, the Supreme Court found that a state law giving priority to municipal water users was overridden by this provision. Thus, it is clear that Congress can and generally does restrict the uses to which water which is released from federal reclamation projects can be applied. From the early years of reclamation projects, state law has governed only as to use, allocation and distribution among water users seeking to utilize water for congressionally recognized purposes. In order to be able to determine whether storage of water for recreation is a recognized purpose in this case we must examine the statutes which authorize the San Juan-Chama project.

D. *Federal Statutes*

The San Juan-Chama project is part of a comprehensive plan to develop the water resources of the states in the upper Colorado River Basin. The Colorado River Storage Project Act contains pertinent provisions:

> In order to initiate the comprehensive development of the water resources of the upper Colorado River Basin, for the purposes, among others, of regulating the flow of the Colorado River, *storing water for beneficial consumptive use*, making it possible for the states of the Upper Basin to utilize, consistently with the provisions

of the Colorado River Compact, the apportionments made to and among them in the Colorado River Compact and the Upper Colorado River Basin Compact, respectively, providing for the reclamation of arid and semi-arid land, for the control of floods, and for the generation of hydroelectric power, as an incident of the foregoing purposes, the Secretary is authorized * * * to contract, operate and maintain the following * * * reclamation projects * * *: * * * San Juan-Chama (initial stage) * * *.

43 U.S.C. § 620 (emphasis added).

[T]he Secretary is authorized and directed to investigate, plan, construct, operate and maintain (1) public recreational facilities on lands withdrawn or acquired for the development of [the Colorado River Storage Project], * * * to provide for public use and enjoyment of the same and of the water areas created by these projects *by such means as are consistent with the primary purposes of said projects*; and (2) facilities to mitigate losses of and improve conditions for, the propagation of fish and wildlife.

43 U.S.C. § 620g (emphasis added).

Although these provisions are general, there is an expression of congressional intent evident: § 620 states that storage of water is to be only for beneficial consumptive use; storage solely for recreation fails to meet the guidelines. Of course, § 620 also recognizes flood control and generation of hydroelectric power, both of which require at least temporary storage. Section 620 leaves the recognized purposes open-ended by inclusion of the phrase "among others."

[21] Section 620g provides that where water areas are created by participating projects in the Colorado River Storage Project, the Secretary should make such areas available for public recreation. Such recreational use must be consistent with the primary purposes of the participating project. It logically follows that recreation itself is not a primary purpose. Thus, water areas are not to be created for recreational purposes.

In 43 U.S.C. §§ 615ii and 615pp *et seq.*, Congress authorized construction of the initial stage of the San Juan-Chama project. The original studies and project proposals had called for diversion of 235,000 acre feet per year from the San Juan-Chama Basin to the Rio Grande Basin. But the initial stage calls for a more limited diversion of approximately 110,000 acre feet per year for a smaller number of intended users.

Section 615pp provides in part:

Pursuant to the provisions of sections 620–620o of this Title [the Colorado River Storage Project Act], the Secretary is authorized to construct, operate, and maintain the initial stage of the San Juan-Chama project, Colorado-New Mexico, *for the principal purposes of furnishing water supplies* to approximately thirty-nine thousand acres of land in the Cerro, Taos, Llano, and Pojoaque tributary irrigation units in the Rio Grande Basin and approximately eighty-one thousand six hundred acres of land in the existing Middle Rio Grande Conservancy District and for *municipal, domestic and industrial uses, and providing recreation and fish and wildlife benefits*. . . . (emphasis added)

[22] From a reading of the above statute it is to be concluded that the principal uses of the San Juan-Chama water are to be municipal, domestic, industrial and irrigation. True, it expresses the intention that the water provide recreation and fish and wildlife benefits. It is plain, however, that such benefits are not intended to be primary purposes, but, rather, incidental ones.

[23] The appellants argue that a contract purchaser of water may use such water for any purpose recognized as beneficial under state law. We, however, disagree with this. As discussed previously, Congress has placed limitations on permissible uses of project water and has established priorities among uses since the very inception of federal reclamation law. These directives are binding on the Secretary and on those seeking to obtain project

water. Where, as here, Congress has specified the uses to which project waters are to be put, a person entitled to receive water must apply that water to an authorized use.

E. *Do the Studies and Reports Indicate That Recreational Purposes Are Authorized?*

[24, 25] Based solely on the statutory language of § 615pp, it is to be concluded that storage of San Juan-Chama water solely for recreational purposes is not authorized. Appellants have argued, however, that the limitation on recreation, fish and wildlife is properly understood as a congressional effort to require reimbursement of project costs. Once water is delivered to a contract purchaser, they argue, Congress did not intend to prevent use for recreation and wildlife. Appellants further maintain that recreation is a municipal use, thus bringing storage for recreation within the principal purposes recognized by the Act. In order to adequately address these contentions, it is necessary to consider materials underlying the statutes which authorize the San Juan-Chama project.

43 U.S.C. § 615ii authorizes both the San Juan-Chama and Navajo Irrigation projects. That statute states:

> The Navajo Indian irrigation project and the initial stage of the San Juan-Chama project herein approved *are substantially those described in the proposed coordinated report* of the Acting Commissioner of Reclamation and the Commissioner of Indian Affairs, approved and adopted by the Secretary of the Interior on October 16, 1957, as conditioned, modified, and limited herein. (emphasis added)

The report referred to in the statute is brief but it incorporates and relies upon two previous reports issued by the Bureau of Reclamation. The October 1957 report does indicate that the entire 110,000 acre feet is to be allocated to irrigation and to the City of Albuquerque for municipal and industrial purposes. The report states that "The initial stage development does not provide for an allocation of water to fish and wildlife purposes," although modification of facilities and operations so as to preserve and propagate fish and wildlife is contemplated. Acting Commissioner of Reclamation and Commissioner of Indian Affairs, Proposed Coordinated Report, H.R.Doc. No. 424, 86th Cong., 2nd Sess. (1960). Ex.C. at xvii.

The October 1957 report states that the initial stage provides for additional recreational facilities in the Rio Grande Basin. The facilities are described as "minimum basic recreational facilities" at the project reservoirs, to be paid for by the federal government at a cost of approximately $400,000. The two earlier reports cited by the October 1957 report clearly state that "no water depletions would result from recreational development." Bureau of Reclamation, Supplemental Report on San Juan-Chama Project, H.R.Doc. No. 424, 86th Cong., 2nd Sess. (1960), Ex.C at 7, [hereinafter "May 1957 Report"]; United States Department of the Interior, Plan for Development of the San Juan-Chama Project, H.R.Doc. No. 424, 86th Cong., 2nd Sess. (1960), Ex.C at 8, [hereinafter "November 1955 Report."] Thus, the reports specifically referred to in the authorizing legislation remove all doubts as to recreation being incidental to uses of water for other purposes.

The appellants maintain that Congress did not directly allocate water for recreation or fish and wildlife, because, under 43 U.S.C. § 620g, a proportionate share of the project costs would then be non-reimbursable. In contrast, § 620e requires the Secretary to recover costs allocated to municipal water supply. From these two statutes, appellants infer that Congress did not intend to prevent contract purchasers of water from using purchased water for recreation or wildlife.

[26] Based then upon express provisions of the statutes quoted above, §§ 615ii and 615pp, and the statements found in the reports above, it must be concluded that the appellants infer much too much from the general reimbursement provisions of the Colorado River Storage Project Act. The reports and the history reveal a more compelling reason for the decision not to allo-

cate water to recreation or fish and wildlife. Congress has been told repeatedly that there is a critical shortage of water in the Rio Grande Basin, and that additional water is desperately needed for municipal, industrial and agricultural purposes. *See* May 1957 Report, Ex.C. at 3, 19, 59, 68, 128; H.R.Rep. No. 685, 87th Cong., 2nd Sess., *reprinted in* [1962] U.S.Code Cong. & Ad. News, 1681, 1685. Considering, then, the consistent concern, expressed repeatedly in discussions and studies underlying the San Juan-Chama Act, for the many critical needs for water in the Rio Grande Basin, we are unable to agree with appellants that the statutory language was designed to limit federal expenditures. Rather, the background materials show that the statutory language was deliberately intended to make recreation and fish and wildlife benefits incidental to other primary uses of the water.

[27] A further argument by appellants is that recreational use, when provided by a city, is a municipal use of water. Thus, storage at Elephant Butte is authorized as one of the primary purposes of San Juan-Chama water. The City relies primarily in supporting this argument on state statutes authorizing municipalities to use and supply water outside city boundaries for "public use." § 3-27-1, NMSA (1978).

[28] Whether or not recreation is a municipal use of water under state law is not relevant. Recreational use of this type was viewed as distinct from municipal use generally by Congress. Congress uses both terms in the statutes; each has a distinct meaning. The contract at issue here would allow Albuquerque to store over 48,000 acre feet a year, nearly half of the entire San Juan-Chama project diversion, in a reservoir some 150 miles from Albuquerque. We need not decide whether the city could, consistent with congressional intent, allocate a more modest amount of water to recreational use; the statutes clearly permit such use of water where incidental to other municipal purposes. The point is, though, that large scale allocations of San Juan-Chama water to strictly recreational use was not intended to be included in the term "municipal" as used in the federal statutes. Such a substantial allocation would leave little for primary uses. Recreation, whether provided by Albuquerque or otherwise, could not justifiably constitute the only beneficial use of such a large amount of San Juan-Chama water.

F. *Does the Knowledge of the Congress That There is an Excess of Water Over and Above the Needs of Albuquerque Impliedly Authorize Albuquerque to Make Any Use of the Water Considered By it to be a Beneficial Use Under State Law?*

The studies preceding authorization of the project show that Albuquerque was expected to use its full allotment of water by 1990. *See* November 1955 Report, Ex. C at 28, 64. However, Albuquerque agreed to begin repayment of the project costs allocated to its municipal supply as soon as the project was complete. In return, Albuquerque requested that it be allowed to receive delivery of its full allotment for resale to others. The November 1955 Report, Ex. C. at 81 states:

> While the water supply studies assumed the demand would start at 6,000 acre feet annually about 1960 and increase uniformly over a 30-year period, the project plan provided for supplying the full amount of 50,000 acre feet annually whenever it is desired by the city. The plan contemplates that *the city would be permitted to resell the water for irrigation or other uses* during the interim period in which the city's demands are less than the supply being imported.

See also, November 1955 Report, Ex. C at 122; May 1957 Report, Ex. C at 16.

The language in all these reports indicates that the water was to be used by Albuquerque or resold to others in the Rio Grande Basin. This is entirely consistent with the reported shortages of water in the Rio Grande Basin; the initial stage of the San Juan-Chama project has provided for allocations of water to only some of the users reported to be in need in the Novem-

ber 1955 Report. November 1955 Report, Ex. C at 59, 68. The testimony at trial of Steve Reynolds, New Mexico State Engineer, also supports this view. Mr. Reynolds testified that Albuquerque contracted to repay project costs based on the understanding that the water could be used "in their own system or for resale to others *who would have the need for the water at that time.*" (emphasis supplied)

Following discussions between Albuquerque and the United States a contract was entered into for the delivery of water and the repayment of project costs. The original contract was dated June 25, 1963 and was amended July 6, 1965. It does contain some language which, if considered by itself, suggests that the city may do as it pleases with water from the San Juan-Chama Project.

> The city ... shall have the exclusive right to use and dispose of that share of the project water supply available and allocated to municipal water supply purposes.... Water may be used or disposed of for any purpose desired by the city from time to time, either within or without the territorial limits of the city.... Ex. 11, pp. 11--12.

However, the contract also contemplates and provides for the possibility that the City might not use all of its water in a given year. The contract allows resale by the United States and credit to the city for amounts so collected.

[29] Also, the contract cannot add to the basic statutory directive for the San Juan-Chama Project. The terms of the contract can be read as authorizing Albuquerque to dispose of the water for any purpose at all. Yet it is undisputed that the water has to be put to beneficial use, as required by law, and that this limits the City's discretion. There is no reason to find that other, more specific limitations on the authorized uses of the San Juan-Chama water should not also limit the City's rights under this contract. The Bureau of Reclamation cannot validly contract to deliver water on terms that are outside the authorization by Congress. 43 U.S.C. § 615ss(a). The statutes, underlying reports and legislative history support the proposition that Albuquerque was to use its water allocation for municipal purposes, including resale to others in need of water so as to help defray the costs of the project.

[30] The fact that Congress knew that Albuquerque might not require its full allocation immediately falls short of proving that Congress intended that the City should be free to do as it pleases with the excess water. It is true that Albuquerque was authorized to sell extra water, but resale must be made in a manner consistent with the Project Act. The contract alone cannot be a basis for storage of large portions of Project water solely for recreational use.

G. *The Other Federal Statutes*

[31, 32] Finally there are some other federal statutes that ought to be mentioned here in trying to bring to the surface every item which might bear some relationship to the questions which we are considering. 43 U.S.C. § 390b and 16 U.S.C. § 460*l*-12. The United States argues that these two sections authorize storage of water at Elephant Butte reservoir. Section 390b recognizes the desirability of federal cooperation with state and local governments seeking to develop water supplies. Section 390b authorizes storage as a part of:

> any reservoir project surveyed, planned, constructed or to be planned, surveyed .... to impound water for present or anticipated future demand or need for municipal or industrial water, and the reasonable value thereof may be taken into account in estimating the economic value of the entire project....

The statute also requires repayment of storage costs. *See, Save Our Invaluable Land (SOIL), Inc. v. Needham*, 542 F.2d 539 (10th Cir. 1976), *cert. denied*, 430 U.S. 945, 97 S.Ct. 1580, 51 L.Ed.2d 792 (1977). There is nothing in the language of this statute to suggest that contracts may be entered into to store water solely for recreational purposes. Even if the statute is read to permit storage by a municipality for any purpose, the specific terms and limitations of the

San Juan-Chama Project Act override conflicting authority in § 390b.

[33] 16 U.S.C. § 460*l*–12 authorizes consideration of opportunities for recreation and wildlife enhancement. If a project can reasonably serve those purposes, it is to be operated accordingly. Assuming that this statute, passed in 1965, applies to San Juan-Chama water, there is nothing in the statute which authorizes storage solely for recreational purposes. The statute does not suggest that specific limitations on use of project water should be ignored in favor of recreation or wildlife. The San Juan-Chama legislation provided for accommodation of recreation and wildlife, including facilities at project reservoirs and allotment of water to Elephant Butte and Cochiti Reservoirs, discussed below. The section in question does not override the requirements of the Project Act.

In 1964, Congress authorized permanent storage at Cochiti Reservoir of 50,000 acre feet of San Juan-Chama water, plus annual additions sufficient to offset evaporation losses, for recreation, fish and wildlife purposes. P.L. 88–293, 78 Stat. 171. In 1974, Congress authorized release of water from Heron Reservoir to provide up to 50,000 acre feet at Elephant Butte. Up to 6,000 acre feet may also be released annually for 10 years to compensate for evaporation. P.L. 93–493, 88 Stat. 1498. Appellees have argued, and the district court agreed, that 88 Stat. 1498 demonstrates that no storage at Elephant Butte is permitted in the absence of express congressional authorization. Appellants, on the other hand, urge that 88 Stat. 1498 and 78 Stat. 171 were passed to permit release of unpurchased water, and that no implied restriction on utilization of water by contract purchasers can be drawn from these statutes.

[34, 35] We cannot agree that 88 Stat. 1498 and 78 Stat. 171 prohibit storage at Elephant Butte under all circumstances, and what we say is not to be construed as reaching this conclusion. We are of the view that storage at Elephant Butte for purposes which are congressionally authorized and which constitute beneficial uses under state law would not violate the San Juan-Chama Project Act. It was necessary that 88 Stat. 1498 and 78 Stat. 171 be passed in order to provide authorization because water was to be released without a contract as required by 43 U.S.C. § 615ss, and for use for solely recreational purposes. We cannot infer from these statutes that water received by contract purchasers is not to be stored at Elephant Butte for municipal, industrial or irrigation purposes.

Finally, we consider a portion of the San Juan-Chama Project Act, 43 U.S.C. § 620a which provides:

> [W]ith reference to the plans and specifications for San Juan-Chama project, the storage for control and regulation of water imported from the San Juan River shall (1) be limited to a single offstream dam and reservoir on a tributary of the Rio Chama, (2) be used solely for control and regulation and no power facilities shall be established, installed or operated thereat, and (3) be operated at all times by the Bureau of Reclamation of the Department of the Interior in strict compliance with the Rio Grande Compact as administered by the Rio Grande Commission. . . .

It has been argued by appellees that this prohibits storage of San Juan-Chama water anywhere besides Heron Reservoir. The total capacity of Heron Reservoir is apparently 400,000 acre feet. The Bureau of Reclamation requires contract purchasers to take delivery of their water allotments each year or forfeit the water for that year. At least under Albuquerque's contract, failure to take delivery does not relieve the city of the duty to make payment. Under appellees' interpretation, Albuquerque would in effect be prevented from storing any San Juan-Chama water. But we are satisfied that the narrow interpretation urged by appellees is not correct, and we do not rest our holding on this ground. The reports demonstrate that the purpose of § 620a was to prevent commingling of San Juan-Chama and Rio Grande Basin waters, and to permit

accurate measurement of the quantity of imported water. November 1955 Report, Ex.C at 51, 64, 71. The federal regulation and measurement facility was located on a small tributary stream primarily to protect the rights of downstream users to Rio Grande flows.

Other parts of the literature support the view that this limitation on federal facilities is not to be construed to prohibit storage of water by contract purchasers after delivery at the outlet of Heron Reservoir. 43 U.S.C. § 615pp suggests that in addition to the storage and regulation facility at Heron Reservoir, water use facilities were contemplated, including reservoirs and dams. *See also*, November 1955 Report, Ex. C at 69. The November 1955 Report considers the possibility of delivery of water allocated to the Middle Rio Grande Conservancy District at the district's El Vado Reservoir. Ex. C at 72. As part of the originally planned diversion of 235,000 acre feet per year, delivery of substantial quantities of water to Elephant Butte was anticipated. November 1955 Report, Ex. C at 65.

[36, 37] The language of § 620a was not intended to prohibit storage of project water by contract purchasers after delivery. However, such storage must be pursuant to authorized uses of project water. We have expressed our viewpoint previously that relevant federal law does not prohibit storage so long as it is not solely for recreational purposes.

III.

[38] The parties have considered the question of whether or not the United States must apply to the New Mexico State Engineer for a permit to store water in Elephant Butte. The United States is of course subject to the requirement of state law regarding distribution of water unless those requirements are inconsistent with applicable federal law. *United States v. California*, 438 U.S. 645, 98 S.Ct. 2985, 57 L.Ed.2d 1018 (1978); *State ex rel. Reynolds v. Luna Irrigation Co.*, 80 N.M. 515, 458 P.2d 590 (1969).

The distribution of water is regulated in New Mexico through a permit system. §§ 72–5–1, NMSA (1978), *et seq.* In accordance with New Mexico law, the United States filed a Notice of Intention and an Application for Permit (Exs. P and Q). The application incorporates the November 1955 Report. These materials determine the scope of the permit. As a contract purchaser, Albuquerque is bound by the terms of the permit. § 72–5–33, NMSA (1978).

[39] The November 1955 Report and the permit do not authorize storage of large quantities of San Juan-Chama water by contract purchasers for purely recreational use. Nor can a permit authorize any use of water not recognized as beneficial under New Mexico Law. Thus, Albuquerque's present plans to store excess water at Elephant Butte are not authorized under the permit held by the United States.

* * * * * *

[40] On August 6, 1979 Albuquerque and the United States, acting through the Bureau of Reclamation, entered into a contract allowing the City to store part or all of its San Juan-Chama water in Elephant Butte Reservoir. Ex. 13. The appellants have argued that such storage would constitute a beneficial use under state law for several purposes: resale, future municipal use, electrical power and recreation. The evidence at trial demonstrated that under present circumstances storage at Elephant Butte would not result in beneficial use for resale, future municipal use or electrical power.

The contract between the City and the United States Bureau of Reclamation is, of course, entitled to some weight. However, to the extent that it is out of harmony with fundamental principles of water law in the state and is also at odds with the federal statutes, it is not possible to write an opinion upholding that contract in its entirety. The areas in which it does not pass muster have been emphasized.

We have assumed that storage for recreation at Elephant Butte could possibly be a beneficial use under New Mexico law. However, storage of large quantities of San Juan-Chama water solely for recreational use is not permissible under the federal statutes. Congress has given the Bureau of Reclamation and contract purchasers a good deal of discretion in utilizing San Juan-Chama water. But the authorizing legislation has been shown to establish that recreation and fish and wildlife benefits are to be incidental byproducts of the importation of San Juan-Chama water and that they are to be secondary to irrigation, municipal and industrial uses.

We conclude that neither the Bureau nor the City may store water in violation of congressional directives, especially in light of the fact that the storage would result in a great amount of waste due to evaporation.

It is for these reasons, therefore, that the judgment of the district court declaring the contract of August 6th, 1979 invalid, null and void is to be affirmed.

It is so ordered.

Senator BINGAMAN. Thank you very much.

Let me start and ask just a couple of questions here.

Larry, you indicated the Bureau of Land Management will issue its Taos Management Plan this fall; is that correct?

Mr. WOODARD. Yes, sir.

Senator BINGAMAN. And will it directly address the issue which we are talking about today, which is the size of the Abiquiu Reservoir?

Mr. WOODARD. Well, it will not address the size of the Abiquiu Reservoir. It will address our management of the Chama River.

Senator BINGAMAN. What can you tell us what it will say that relates to the issue before us as to that bottom portion of the river?

Mr. WOODARD. It probably will not address that very bottom part that you are dealing with, which seems to be the sticky part.

Senator BINGAMAN. The regular releases you were talking about, this is the plan that has been discussed for some time between the State and the Corps, as I understand it—to have releases on weekends throughout the summer and early fall; is that correct?

Mr. WOODARD. Yes. And private boaters can adjust to an unknown schedule, but commercial outfitters cannot. They need to have some assurance of when those releases are going to be occurring, and that's why I think we see a leveling off of commercial use.

Senator BINGAMAN. And the leveling off, is it at this 3,000 level that you mentioned?

Mr. WOODARD. Yes.

Senator BINGAMAN. But you expect it to go up to 10,000?

Mr. WOODARD. Yes.

Senator BINGAMAN. Thank you.

Let me ask, Colonel Gonser, if I could, you indicate that there's a reallocation study that is about to be completed; is that correct?

Lieutenant Colonel GONSER. Yes, sir. We undertook a study that I believe is being released in September or thereabouts that will talk to whether additional storage should be authorized at this time behind the reservoir.

Senator BINGAMAN. Can you tell us what you are going to conclude as to that issue as to whether there should be additional storage at that reservoir? That would be useful information before we have to act on this bill.

Lieutenant Colonel GONSER. As I understand it, we're basically concluding that at this time, no additional storage should be authorized, partially because of the cost involved and the need; but, we also recommend that the potential be allowed in case in the future Congress would wish to do that.

As Senator Domenici mentioned, at this point, no additional water can be stored without full Congressional authorization. So, it has to stay where it is at this point.

Senator BINGAMAN. In the last few years, my impression is, there has been a significant increase in the storage there by virtue of the flood-control activity. Could you just briefly describe the history of that, and what has happened in the last three or four years?

Lieutenant Colonel GONSER. Yes, sir. As you all know from being around here—I just came in from out of state, and it was pretty dry where I came from; but, the rainfall and the snowpack in this

area has been highly unusual—something we haven't seen in many, many years, perhaps hundreds of years. And so, the water has slowly built up such that Elephant Butte finally spilled, which meant that is as full as the system can get.

So, we have progressively increased the water in our reservoirs. We obviously try and get it out when we can because our mission is strictly flood control. So we try and release the water when we can throughout the summer.

But, because of the incoming water, we have reached increasing heights behind Abiquiu and Cochiti and the rest of the system. There is no idea whether this is going to continue. It is certainly an unusual occurrence, so our estimate is that we will be able to decrease the water behind the reservoirs in future years.

Senator BINGAMAN. Let me ask on the issue of safety. There has been some concern expressed that a study might be needed as to the safety of Abiquiu Dam, particularly with regard to potential earthquake problems. In light of the high level of fill that you have at the reservoir, does the Corps contemplate any kind of a study? Do you feel it is appropriate? Would you be willing to undertake it, if Congress thought it was appropriate?

Lieutenant Colonel GONSER. Sir, we'll undertake anything Congress thinks is appropriate.

[General laughter.]

Senator BINGAMAN. You're about the only Federal agency that can say that. That's true.

[General laughter.]

Lieutenant Colonel GONSER. Sir, we have had our geotech people look at it, and they've looked at it in depth. We have had our next-higher-headquarters' people from Dallas, Texas look at the situation, and we've also called in our engineers from Washington, which includes just hundreds and hundreds of years of experience in dam building, and they all feel comfortable that there is no problem with the dam with the increased storage, irregardless of any earthquake situations.

We also have called in outside agencies, and we hired a consulting firm to also look at it. They came up with the same conclusion. As it stands now, we see no problem whatsoever as far as safety, because if we did, we would do something about it, because the Corps has not had a dam fail yet, and we certainly don't want this to be the first one.

Lieutenant Colonel GONSER. So, we don't see that as a problem.

Senator BINGAMAN. What is the outside firm that you referred to?

Lieutenant Colonel GONSER. John.

Mr. CUNICO. Tierra Engineering and Consultants that we've hired. They are a firm here in Santa Fe, and they also hired consultants to address the problem in conjunction with them.

Senator BINGAMAN. I may have another question or two, but let me defer to my colleagues.

Pete, go ahead.

Senator DOMENICI. Thank you very much, Senator.

Mr. Chairman, I Welcome the new head of the Corps Office. Some people hear of dam failures as the result of improper Federal construction, engineering, and the like. Now, did you make a state-

ment a minute ago that the Corps has never had a dam failure in all of its history?

Lieutenant Colonel GONSER. Well, that's what they indicated.

John, do you know if they have? I know that there have been with, perhaps, of a lot of other agencies and privately built ones, and those are the ones you hear of.

Senator DOMENICI. Is it my understanding that the Corps——

Mr. CUNICO. The Corps has never had a dam failure, as far as I know. The Bureau of Reclamation had a major dam, and that was the Teton failure eight or ten years ago.

Senator DOMENICI. The only point I wanted to make was that some people confuse the Corps with other——

Lieutenant Colonel GONSER. Right, yes. Certainly, not all the reservoirs belong to us. We are primarily in the flood-control business.

Senator DOMENICI. So no flood-control dam that you are aware of, in the history of the Corps has ever collapsed, is that correct?

Lieutenant Colonel GONSER. Correct, sir. And that's why we went through this safety analysis as far as flood control and ultimately ended up raising the reservoir.

Senator DOMENICI. Now, regardless of future needs of the City of Albuquerque—future flood-protection needs—there is an absolute limit right now on what can be put in this reservoir facility that is authorized by the Congress of the United States; is that not correct?

Lieutenant Colonel GONSER. Yes, sir. We are limited as to how much flood control by legislation, and that cannot be changed. Well, it can be changed, but we can't change it.

Senator DOMENICI. We have to change it.

Lieutenant Colonel GONSER. Yes, sir.

Senator DOMENICI. And it is now to be used for three different things—flood control, 50,000 acre-feet for sediment, and 200,000 for the City of Albuquerque?

Lieutenant Colonel GONSER. Yes, sir.

Senator DOMENICI. Up to 200,000 acre-feet?

Lieutenant Colonel GONSER. Right.

Senator DOMENICI. And let me ask you. It's clearly understood, as we start these hearings, that you could not in any way, unilaterally, under your management scheme, you could not in any way increase the current storage of this dam facility, even though its physical capacity exceeds that? Is that correct?

Lieutenant Colonel GONSER. That's correct.

Senator DOMENICI. All right. Now, let me ask about this management conflict. I think it's simple, and we ought not to spend a lot of time on it. It has to do with the bottom 1.7 miles.

Lieutenant Colonel GONSER. Right.

Senator DOMENICI. We are not speaking of a management conflict in the four-mile area that——

Lieutenant Colonel GONSER. That's correct, just the 1.7 miles that are within our current flood plan.

Senator DOMENICI. Well, tell us quickly. How would this bill change the current management, so we all understand?

Lieutenant Colonel GONSER. Well, in the second part of the bill, although it isn't designated as a Wild and Scenic River, it calls for joint management by the Bureau of Land Management and the

Forest Service to manage it as a Wild and Scenic River, and that puts the Corps somewhere in limbo status, so that there would be some kind of coordination or some kind of agreement would have to be worked out during flood-control situations.

Senator DOMENICI. All right. So, if it is the intention of the sponsors in putting the language together that finally evolves from Congress, if that intention on that 1.7 miles is that it be managed as it is currently being managed, are you telling us that you are concerned about the language we used because that might not happen?

Lieutenant Colonel GONSER. Yes, sir. We're concerned that when you have so many players involved in the management of that small stretch, that there are going to be problems.

Senator DOMENICI. All right.

Lieutenant Colonel GONSER. Now, the Corps feels that we can manage it very effectively, as we have since the reservoir was constructed.

Senator DOMENICI. Now, when you did the studies as to safety—and then I will be finished and ask one question of Larry when you did the evaluation of the dam's safety, it's my recollection—and you can ask your planner if this is correct that you concluded that for the current authorized uses and storage, that it was safe. Is that a correct statement?

Lieutenant Colonel GONSER. I believe it extended to even if we increased the storage to the full maximum, it would be safe, because in flood situations, the water would get up to that level. Because the dam is expanded and it can't all pass through the spillway, if you had a maximum probable flood, the water would get to that level. And then we would have to make sure that the dam would be able to handle that. So I believe it is at the higher level.

Mr. CUNICO. It is our position that it is safe for the current authorized purposes and authorized storages. It would also be safe for the additional storage up to the spillway storage limits.

Senator DOMENICI. Okay. Thank you very much.

Larry, in terms of your work, what does "one visitor day" mean? You say it was 1,300, and that it could go up to 3,000. What does "one visitor day" mean?

Mr. MOHL. A visitor day——

Senator DOMENICI. Would you identify him for us?

Mr. WOODARD. That's Tom Mohl from our Taos Resource Series. He is one of our river rangers.

Senator DOMENICI. What does it mean?

Mr. MOHL. Okay. A visitor day means one person on the public land for a day.

Senator DOMENICI. For a day?

Mr. MOHL. For a day, for a 12-hour day. So, if a person stayed on there two days, that would be two visitor days.

Senator DOMENICI. So, when we're talking about the river, how do you define that? It's going up significantly, and that's great. But, what does 3,000 visitor days mean—not 12 hours on the river.

Mr. MOHL. No. It means that the people spent that many days on the river. So, what we do is, we have a check-in point on the river. We know how many people launch on the river, and we know how long they stay on the river, and then we compute up from that how

many visitor days there were. So, if a person took a one-day trip, that would be one visitor day. So, if they spent two days, that would be two visitor days.

Senator DOMENICI. So, 3,000 is something like 300 days a year, 10 people a day—or 30 days, 100 people each day?

Mr. MOHL. Right.

Senator DOMENICI. That is 3,000?

Mr. MOHL. Right. And that was in 1986.

Senator DOMENICI. 1986.

Thank you very much, Mr. Chairman.

Senator BINGAMAN. Thank you.

Congressman Richardson.

Mr. RICHARDSON. Thank you, Mr. Chairman. I must say I'm a little bit befuddled by what I've heard. Is it correct to assume that the administration has not arrived at an official position on this bill because of disagreement between the Forest Service and the BLM with the Corps of Engineers? Is that an accurate characterization? I heard the Corps say, "It sounds like a good deal to the opposition," because you're concerned about some turf problem. And I guess my question is, a corollary to that is, we are talking about the last five miles of whitewater segment. And I would like the BLM and the Forest Service to tell me. Do you think that this segment should be part of the bill, or do you support the Corps' position that it should be taken out and the issue then become, if you take out the last five miles, does the bill become meaningless? In my judgment, it does; but, I'm just trying to get an assessment of what the administration says regarding your final views of this bill.

Mr. WOODARD. Congressman Richardson, I think when I stated earlier that the administration had not arrived at a position, it is not over disagreement; it is just a question of timing. They just had not, at the departmental level, had time to review this.

I would say this. It is our position—I think it's in my written testimony—where our Taos Resource Plan is proposing and recommending that this segment be Wild and Scenic, that reflects the BLM's position as of now. It is still in a proposal stage, but that is where we're headed.

Mr. RICHARDSON. The entire scope?

Mr. WOODARD. Yes.

Mr. RICHARDSON. Okay.

All right. Mr. Milanowski.

Mr. MILANOWSKI. Well, with our plan, also, the department's position has not been established, primarily because our plan has not been distributed to the public yet. It will be later this summer. But, in the plan, we did evaluate the river that is on National Forest portions and made our recommendation, and there were two portions identified as Wild and Scenic. The lower portion was identified as meeting the recreational river characterization of Wild and Scenic.

Mr. RICHARDSON. So, your position and the BLM's is the same?

Mr. MILANOWSKI. Very similar.

Mr. RICHARDSON. Now, when are you going to arrive at an administration decision? Is there a process going on for the Department of Interior to submit to us their final view?

Mr. MILANOWSKI. For the Department of Agriculture, I assume that will happen when the bill is introduced and the department witnesses are called. I can't speak for the department, sir.

Mr. RICHARDSON. Okay.

Now, Colonel Gonser, I know you're new, and it may be unfair to ask you this; but, is the bottom line here the management—the fact that you mentioned a multiplicity of agencies? I mean, what's wrong with that? I mean, you have two good agencies here. Are you concerned that you will be out of it completely? What if you had a role, too?

Lieutenant Colonel GONSER. No, sir. I think, as you can see from the varying positions, that the reservoir was established for flood-control purposes, and we feel, then, that it should be managed for flood-control purposes. And if we want to use it also in addition to recreation, that the Corps can do that, as they have in the past.

The interests of the other agencies, though, is primarily the recreation and not involved with flood control. And so I'm concerned that if they're managing that section of the river with no flood-control interests, that when it comes time to use that reservoir as it was originally established—for flood control—that that wouldn't be accomplished. So, I think the Corps needs to have control of that to make Abiquiu Reservoir function as it was proposed.

Mr. RICHARDSON. Okay. Colonel Gonser, one last question.

Lieutenant Colonel GONSER. And this is only the lower 1.7 that we're talking about, not the whole 4-mile stretch.

Senator DOMENICI. Would you yield, Bill?

Mr. RICHARDSON. Yes.

Senator DOMENICI. Frankly, I think on that one, Congressman Richardson, I believe Senator Bingaman and I conclude that was an error on our parts. Either we made a mistake, or we forget. The Corps has to be in that 1.7 miles, because one of its principle purposes is flood control; they are the only entity charged with the flood plan. So, I think we concur on that; do we not, Jeff?

Senator BINGAMAN. I think that's right. I think the Corps does have to be involved in management of that lower 1.7——

Senator DOMENICI. Right.

Senator BINGAMAN [continuing]. Which is within the existing authorized pool.

Mr. RICHARDSON. All right.

Colonel, with that concession or whatever, are you now prepared to support the bill?

Lieutenant Colonel GONSER. Well, sir, as my testimony indicates, we basically had two concerns. One was for the lower 1.7 miles; and, honestly, we've just solved that concern.

The second one was for the next four miles below the spillway crest, and this is what is involved with the future storage, not the current authorized storage. That is not required for flood control, and so the Corps is not saying that that must be left out of the bill. The Corps is merely recommending, based on the fact that we have years of experience in the water business, that you might want to look at future water needs. We are not as concerned with that section, because it doesn't impact us directly; but, as a responsible agency who supports people in New Mexico, we merely recommend that it be investigated or looked at further in that area.

Mr. RICHARDSON. I would hope, Colonel, that the issue of the storage level is one of considerable disagreement. At least in communications from many of my constituents, they're also telling me that we're exceeding. And I think February was kind of a close month where perhaps the authorized level, according to many of my constituents, was exceeded.

Lieutenant Colonel GONSER. No, sir.

Mr. RICHARDSON. You are confident that under no circumstances has it been exceeded, and that you've taken every preventative step to insure that it doesn't?

Lieutenant Colonel GONSER. No, sir, we have not gotten near it yet, even after these many years of rain. We take special care to make sure we don't exceed that.

But, you're right. The second section is purely water storage for supply, and that generally isn't the Corps' function. So, merely for that second four-mile segment, ours is a recommendation. It isn't our function. We are in the flood-control business, and that is a water-supply question. So, ours is merely a recommendation.

Mr. RICHARDSON. Thank you, Colonel, and welcome. I wish you the best.

Lieutenant Colonel GONSER. Thank you.

Senator BINGAMAN. Let me ask one additional question, Colonel. Am I right that Albuquerque was built and expanded for the express purpose of flood control, not for water storage?

Lieutenant Colonel GONSER. That's correct. It was a flood-control authorized project, originally.

Senator BINGAMAN. Okay. Did you have anything else, Pete?

Senator DOMENICI. No, I have nothing else.

I just wanted to welcome you, Colonel. We've been pretty fortunate having Colonel Peixotto here. We hope that you do as well. You do have some tough shoes to fill, but we hope you succeed, and we welcome you. Thanks for being here.

Senator BINGAMAN. I appreciate everyone on the panel.

Why don't we go to the second panel and dismiss this group?

In the second panel is Steve Gallegos of the Albuquerque City Council, Larry Larranaga, Guadalupe Garcia, Tom Bahr, and our State Engineer, Steve Reynolds.

All right. Why don't we go ahead? Why don't we go ahead here with this panel?

Our first witness here in the order that I went through them is Larry Larranaga, who is the Director of the Department of Public Works for the City of Albuquerque.

Larry, why don't you go right ahead here? We're glad you're here.

STATEMENT OF LARRY LARRANAGA, DIRECTOR, DEPARTMENT OF PUBLIC WORKS, CITY OF ALBUQUERQUE, NM, ACCOMPANIED BY GARY DAYS, STAFF, DEPARTMENT OF PUBLIC WORKS

Mr. LARRANAGA. Thank you, Senator.

Good morning, Senator Domenici.

Senator DOMENICI. Good morning.

Mr. LARRANAGA. Senator, my name is Larry Larranaga, and I am the Director of the City of Albuquerque Public Works Depart-

ment. I am here to represent Mayor Schultz, who was unable to be here because of an unfortunate accident and because of making final preparations for the new Convention Center. So, he's asked me to speak in his behalf.

I want to thank you very much for the opportunity to present the views of the City on Senate Bill 850.

Before I reiterate the City's position on this important piece of legislation, which was given by a letter of April 24, 1987 from the Mayor to Senator Domenici, copies of which were sent to Senator Bingaman and Congressman Richardson and Congressman Lujan, I would like to make some comments and observations from the City's perspective.

I want to thank those proponents—and I see many of them here—for this legislation as drafted for their active, enthusiastic and very persistent efforts at convincing the City as to the merits of their position. They have been very fluent in knowing and advocating this desirable policy for the City of Albuquerque. We feel, however, that the City's position should and does reflect more than isolated consideration of desirable City policy.

The City is blessed by its location on the Rio Grande system, of which the Rio Chama is a very vital part. We understand the need for balance, sharing and restraint with regard to the treatment of this value and these resources, and hope that we make decisions from this perspective.

I understand that these proponents did not object to the authorization for storage in Abiquiu Reservoir that is presently affording recipients of San Juan-Chama water, including the City of Albuquerque, which Senator Domenici alluded to very eloquently just a minute ago. We appreciate this forbearance and whatever support was offered at that time, and if thanks have not been offered before, let me express them on behalf of the City this morning.

I also want to thank the various agencies that are interested in the issues raised by Senate Bill 850 and that have been of great assistance to us, the City of Albuquerque, in their advice and counsel, particularly, the State Engineer's Office, the Corps of Engineers, and many others.

In good faith, the City, with others, asked for the resumption of the Abiquiu storage study in 1985, and in good faith, the Corps responded and has been carrying out the study, which we understand will be completed sometime next month.

The City is happy to support the designation of a portion of the Rio Chama as a Wild and Scenic River. As Mayor Schultz expressed in his letter to you, Senator Domenici, and I quote, "I am very much aware of the treasure New Mexico and the nation has in the Rio Chama and therefore support your and other Congressional members' intent in acting to assure its protection."

However, as all of the actors interested in and affected by Senate Bill 850 as proposed know, the primary intended effect of the legislation is to foreclose consideration of utilizing physically available capacity in Abiquiu Reservoir above the presently authorized flood pool. The City believes this would be a mistake.

We understand that the Abiquiu storage study that I alluded to earlier will conclude with a recommendation that due to the lack of present commitment by the potential users, no additional stor-

age ought to be sought at this time, and let me underscore at this time. This does not mean that additional storage will never be prudent and will never be the wisest course of action. The City has determined that the real costs for additional storage are presently too high, given the City's present need for the storage, to justify seeking additional storage. You and the Corps are already aware of our position that adding sunk costs to artificially inflate these costs is a mistake, which has been, in the City's experience, honored by Congress in the breach.

But, the City does not presently know whether in 10 or 20 years or more, such storage might not be the wisest course of action to take. As Mayor Schultz expressed it recently, and I quote again, "The City might well develop other long-term needs for additional storage not anticipated today. We think it neither necessary nor appropriate for present action by Congress to foreclose future consideration of such needs."

And I think this is exemplified by a study we are presently undergoing right now, in which the City is expending more than $2.5 million on a study to determine to see what the recharge is at this point as its groundwater purpose right now. I believe that other entities are also in the same position, and we could name them—some of us who have water in this particular Abiquiu storage location—including Taos, Espanola, Los Alamos, and many others up and down the river, such as Bernalillo, Belen, Socorro, and Truth or Consequences. We believe that all parties ought to be willing to trust this decision to the wisdom of the future. And you cannot fight against the future, for time is on their side. [General laughter.]

Mr. LARRANAGA. In this regard, I might note that those proponents of locking storage to present levels who have been assiduously educating us these last few years were elated at the City Council's decision expressed by City Council in Resolution 177-1986—and I will paraphrase here—not to seek additional storage in Abiquiu unless it makes sense. Specifically—I wish the Council would have been here to talk about it—I quote from it, "That the City should not obtain additional storage for its water in Abiquiu Reservoir in the absence of a clear economic justification and a determination that the benefits of such storage in the City outweigh any adverse effects."

On this standard, we presently do not seek additional storage. On this same standard, we might seek additional storage in the future. We think Congress ought not to foreclose this option for us and for others in the future.

Accordingly, the City asks that very serious consideration be given to amending Senate Bill 850 to raise the lower end of the Wild and Scenic Designation to the altitude of the Abiquiu spillway, while providing that the scenic and wilderness values between the spillway elevation and the elevation of the presently authorized flood pool be preserved, consistent with the authorized purposes of Abiquiu.

I believe that it is generally felt that Senate Bill 850 as introduced with the Wild and Scenic Designation terminating at elevation 6,283.5 feet would not in any way affect presently authorized use of Abiquiu.

The authorized San Juan-Chama storage in Abiquiu is presently located within the flood pool. Being located within the flood pool, it is subject to spill if the 200,000 acre-feet capacity is needed for flood protection. Public Law 97-140, which authorized storage of up to 200,000 acre-feet of San Juan-Chama water in Abiquiu, will allow the flood pool and the San Juan-Chama pool to have separate storage spaces. If this 200,000 acre-feet of capacity were made a discrete element separate from the flood pool, the authorized level of the reservoir would rise to about an elevation of 6,307 feet. Senate bill 850, as it presently reads, would preclude this action.

But, I must reiterate that the City views the more prudent course to be to move the designation to 6,350 feet, the spillway crest.

The City and others have decided that it would be imprudent to seek additional storage in Abiquiu Reservoir at this time. The proponents of Senate bill 850 as drafted agree with this decision.

The City, for its part, would trust the wisdom of the future to make decisions on this question in the future, and we believe that substance—not a label—ought to be the basis for this decision.

Thank you.

[The attachments to the statement of Mr. Larranaga follow:]

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR KEN SCHULTZ
CHIEF ADMINISTRATIVE OFFICER GENE ROMO
DEPUTY CAO PUBLIC SERVICES FRANK MARTINEZ
DEPUTY CAO PLANNING/DEVELOPMENT BILL MUELLER

April 24, 1987

The Honorable Pete V. Domenici
U.S. Senator
434 Dirksen Senate Office Bldg.
Washington, D.C. 20510

Dear Senator Domenici:

Thank you for your letter of March 27, 1987, asking for the City's views on the pending Congressional proposal to declare a portion of the Rio Chama a "Wild and Scenic River". The City shares the concern expressed in your letter and your comments on the Senate floor relating to the effect this legislation, if passed as introduced, would have on the ability of the State, including Albuquerque as the major population component of the State, to use the presently unauthorized and unallocated storage space in Abiquiu Reservoir. On the other hand, I am very much aware of the treasure New Mexico and the nation has in the Rio Chama and therefore support your and our other Congressional members' intent in acting to assure its protection.

I am enclosing copies of several letters, some of which you have previously received, regarding specific needs the City has for additional storage in Abiquiu. These needs continue. In addition, as suggested by your comments, the City might well develop other long term needs for additional storage not anticipated today. We think it neither necessary or appropriate for present action by Congress to foreclose future consideration of such needs. We are aware that at this time the Corps of Engineers intends to recommend no additional conservation storage space in Abiquiu based primarily upon the fact that the City and others desiring the space cannot economically justify the costs based upon the applicable statutory formula. However, we think that with a change in the federal formula and or the economics of water, additional storage might well become economically feasible.

Moveover, we feel that a full discussion of the appropriate costs for additional storage in Abiquiu - as opposed to the rigid formula - ought to be part of the consideration in weighing the present and or potential need for storage in Abiquiu in determining how far downstream the "Wild and Scenic River" designation should be applied. Enclosed, in amplification of the City's views on this point, is a copy of a September, 1986, letter sent by a member of my staff to Mr. Hal Brayman.

In conclusion, the City applauds and supports the action to protect the Rio Chama, but we feel that allocation of additional conservation storage for Abiquiu ought not be foreclosed as would be the effect of the legislation as introduced. To that end we support the approach given by the draft amendment as a means of leaving the storage option open while granting the maximum federal protection consistent with that option.

I appreciate very much the opportunity to express the City's views on this important issue. If you need any additional information, please let me know. I want to take this opportunity to remind you of a suggestion related to the issues in this letter that I have made to you and the Corps of Engineer, regarding the City's interest in creating water recreation within the City. I am enclosing a staff memorandum and a City Water Based Recreation Study as further information on this point.

Sincerely,

Ken Schultz

Ken Schultz
Mayor

KS:GD:mk

enclosures:

CITY of ALBUQUERQUE
SEVENTH COUNCIL

COUNCIL BILL NO. R-183 ENACTMENT NO. 177-1986

SPONSORED BY: Steve D. Gallegos

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RESOLUTION

SETTING POLICY REGARDING THE STORAGE OF ADDITIONAL WATER AT ABIQUIU RESERVOIR AND CALLING FOR AN INVESTIGATION OF ALTERNATIVES FOR THE USE AND DISPOSITION OF SAN JUAN-CHAMA WATER.

WHEREAS, the City's participation in the San Juan-Chama water supply project has guaranteed the City a long-term supply of water for municipal use, in the amount of 48,200 acre feet per year; and

WHEREAS, the City will at some point in the future consume its full allotment of San Juan-Chama water, but at present does not consume any and sells only a small portion; and

WHEREAS, the City has the right to store 170,900 acre feet of San Juan-Chama water at Abiquiu Reservoir which, together with other users of the Reservoir, has exhausted the authorized capacity for conservation storage at Abiquiu Dam; and

WHEREAS, the U.S. Army, Corps of Engineers has estimated that storage of additional San Juan-Chama water at Abiquiu Reservoir would cost between $6.50 and $23.60 per acre foot per year depending on whether sunk costs are included and the amount of storage desired; and

WHEREAS, additional stored water will not augment the long-term water rights available to the City, and may provide only minimal benefit to the City for the next forty years; and

WHEREAS, substantial funding may be required in the future for the City to purchase supplementary water rights for future population expansion; and

WHEREAS, temporary non-delivery of San Juan-Chama water does

not, according to the contract with the U. S. Department of Interior, Bureau of Reclamation, jeopardize the City's right to future deliveries of San Juan-Chama water as and when needed; and

WHEREAS, additional storage of surplus water at Abiquiu Dam would have the impact of damaging an important recreational and wilderness resource for City residents, the Rio Chama; and

WHEREAS, the Rio Arriba County Commission has by resolution opposed any increase in permanent storage at Abiquiu Dam; and

WHEREAS, there is an initiative by some Albuquerque residents to secure Congressional recognition for the Rio Chama as a National Wild and Scenic River.

BE IT RESOLVED BY THE COUNCIL, THE GOVERNING BODY OF THE CITY OF ALBUQUERQUE:

Section 1. That the City should not obtain additional storage for its water in Abiquiu Reservoir in the absence of a clear economic justification and a determination that the benefits of such storage to the City outweighs any adverse effects.

Section 2. That the Public Works Department shall investigate alternatives for use and disposition of the City's annual allotment of San Juan-Chama water. These alternatives shall include but are not limited to: aquifer recharge and the selling of water for industrial, agricultural and municipal uses.

79-562 91

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PASSED AND ADOPTED THIS 15th DAY OF December, 1986.

BY A VOTE OF 8 FOR AND 0 AGAINST.

Yes: 8
Excused: Hill

Patrick J. Baca, President
City Council

APPROVED THIS 29TH DAY OF DECEMBER, 1986.

Ken Schultz, Mayor
City of Albuquerque

ATTEST:

City Clerk

79-562 92

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Senator BINGAMAN. Thank you very much.

Next is Steve Reynolds, our State Engineer.

Steve, we're very happy to have you here. Please pull that microphone over.

STATEMENT OF S.E. REYNOLDS, NEW MEXICO STATE ENGINEER

Mr. REYNOLDS. Thank you, Mr. Chairman, Senator Bingaman, Senator Domenici, and Congressman Richardson. I think you can be sure that all of us here are most appreciative that you would come here to Santa Fe for this discussion of Senate bill 850.

Mr. Chairman, I'll try to shorten my remarks. Perhaps this has some redundancy.

The currently authorized purposes of Abiquiu Reservoir include 555,000 acre-feet for sediment and flood control, and 200,000 acre-feet for the storage of San Juan-Chama Project water, for a total of 755,000 acre-feet. Abiquiu Reservoir is capable of storing that amount of water at elevation 6,307. That elevation is about 1.4 miles upstream of elevation 6,283.5, the termination of the Wild and Scenic River to be designated by section 1 of the bill.

Senator DOMENICI. How far?

Mr. REYNOLDS. 1.4 miles.

Senator DOMENICI. Excuse me, Mr. Chairman.

Senator BINGAMAN. Go ahead.

Senator DOMENICI. We have been generally talking about 1 mile. Have you done more accurate calculations, and it's 1.4?

Mr. REYNOLDS. Yes, sir. As close as we can determine off our county contour-level maps, that will be close.

Senator DOMENICI. So, if we were talking about 27 to be managed as it is managed, and then we are talking about 4, you're talking about 1.4 of the 4 miles?

Mr. REYNOLDS. 1.4 from 6,307——

Senator DOMENICI. All right.

Mr. REYNOLDS [continuing]. Which is 755,000 acre-feet, down to 6,283.5, which is the termination proposed by S. 850——

Senator DOMENICI. All right.

Mr. REYNOLDS [continuing]. For the Wild and Scenic portion. That is exclusive of that going down to 6,235.

Now, the last paragraph of section 2 would provide, "Nothing in this section shall be construed to prohibit operation of Abiquiu Dam for purposes authorized by law as of the date of enactment of this Act. 'And it seems to me that, consequently, with the last paragraph of section 2 of the bill, it would seem to require that the Wild and Scenic River to be designated by section 1 is to terminate no further downstream than elevation 6,307.

The segment of the Rio Chama to be designated by the bill as Wild and Scenic is virtually fully regulated. For that reason, some may find it difficult to fit it into the usual concept that a wild river is free-flowing.

Nonetheless, we carefully arrange releases from El Vado Reservoir to provide opportunity for rafting. In arid lands, any water-based recreation is particularly attractive. The rafting opportunity provided by releases from El Vado Reservoir nicely supplements

the excellent flat-water recreation on the beautiful blue lake created by conservation storage in Abiquiu Reservoir.

I believe that a study identifies that the visitor days at Abiquiu Reservoir in 1986 was 600,000.

A Corps of Engineers' study shows that the recent modification of the Abiquiu Dam and Reservoir Project would make it possible to dedicate an additional 467,000 acre-feet of the 1,201,500 acre-feet of capacity below the spillway crest of Abiquiu Dam to conservation storage without detriment to the flood- and sediment-control purposes of the project. That dedication would, of course, require Congressional authorization.

Enactment of S. 850 would most likely preclude forever use of Abiquiu Dam for any purpose not presently authorized. I'm not able to identify at this time any water users or group of water users who need and are prepared to pay the cost of reallocating the capacity of Abiquiu Reservoir for conservation storage under the terms of Public Law 99-662 that was enacted last year. At a lower cost, the City of Albuquerque could use additional conservation space in Abiquiu Reservoir for the storage of the San Juan-Chama Project water that the City has contracted for, but does not yet need for its municipal water-supply system. Water thus stored could be sold by the City to defray a part of its cost of acquiring the water under contract with the Secretary of Interior.

Under the right cost and hydrologic conditions, the Middle Rio Grande Conservancy District could use space in Abiquiu Reservoir to store its share of San Juan-Chama Project water, as could other entities, as has already been said. Santa Fe, Los Alamos, Espanola, and Middle Rio Grande Conservancy District all have water in that 200,000 acre-feet authorized by the Congress in Public Law 97-140.

Just a week ago today, a representative of an association of Rio Chama community ditches expressed interest in contracting for water from the San Juan-Chama Project and storing it in Abiquiu Reservoir to provide a reliable water supply for the community ditches on Rio Chama below Abiquiu Reservoir. An amendment of Public Law 99-662 could make it financially feasible for San Juan-Chama Project water users to make good use of this Abiquiu Reservoir.

In the last four years, there has been an abundant water supply in the Rio Grande Basin, but even those with only brief experience in the management of water in arid spots know the next drought will be here too soon, and they understand that usable conservation storage capacity should not be given up except for most compelling reasons.

I am constrained to point out that New Mexico's El Rio Chama Scenic and Pastoral Act, which designated about 30 miles of Rio Chama below El Vado Dam as a Scenic and Pastoral River, provides in paragraph E. of section 16-4-6 as follows: "Nothing in El Rio Chama Scenic and Pastoral Act shall be construed as being incompatible with existing state property laws. Nothing shall be construed to be incompatible with the regulation of river flow for flood control or beneficial uses of water."

I respectfully suggest, Mr. Chairman, that deference be given state law by amending the last section of section 2 of S. 850 to read as follows: "Nothing in this Act shall be construed to be incompati-

ble with the operation of Abiquiu Dam for regulation of river flow for flood and sediment control and water storage for beneficial uses of water."

Even in the highly improbable event that Abiquiu Reservoir is filled to the spillway crest at elevation 6,350, only the last 4 miles—or about 13 percent of the Wild and Scenic River that would be designated by section 1 of S. 850—would be affected.

Mr. Chairman, I appreciate the opportunity to make this statement.

[The prepared statement and subsequent submittal of Mr. Reynolds follow:]

Statement on S.850

A bill to designate a segment of the Rio Chama River in New Mexico as a component of the National Wild and Scenic Rivers System.

Presented July 27, 1987
in
Santa Fe, New Mexico

Mr. Chairman, my name is S. E. Reynolds. I am New Mexico State Engineer.

Section 1 of S.850 would designate the segment of Rio Chama from the El Vado Ranch launch site immediately south of El Vado Dam downstream approximately 31 miles to elevation 6283.5 feet above mean sea level as a component of the National Wild and Scenic Rivers System. The downstream nine miles of the segment would be administered as a scenic river and the upstream 22 miles would be administered as a wild river.

Section 2 of the bill would require management of the river from elevation 6283.5 to elevation 6235, a distance of about 1.7 miles, in a manner similar to that required for a scenic river.

The downstream 4.0 miles of the river segment to be designated by Section 1 of the bill would be below the elevation of the spillway crest of Abiquiu Dam, that is within Abiquiu Reservoir and thus subject to inundation if and when the reservoir fills and spills.

At elevation 6283.5, Abiquiu Reservoir contains 555,000 acre-feet which is the volume necessary to contain the authorized 502,000 acre-foot flood control pool and the remaining 53,000 acre-feet of the authorized sediment control pool. At elevation 6235, the lowest elevation of the reach that would be managed by

the Bureau of Land Management and the Forest Service in a manner similar to that required for the management of a scenic river, the capacity of Abiquiu Reservoir is 259,000 acre-feet, an amount little more than sufficient for the sediment pool and the 200,000 acre-feet of San Juan-Chama Project water authorized to be stored in Abiquiu Reservoir by Public Law 97-140.

The currently authorized purposes of Abiquiu Reservoir include 555,000 acre-feet for sediment and flood control and 200,000 acre-feet for the storage of San Juan-Chama Project water for a total of 755,000 acre-feet. Abiquiu Reservoir is capable of storing that amount of water at elevation 6307. That elevation is a distance of about 1.4 miles upstream of elevation 6283.5, the termination of the wild and scenic river to be designated by Section 1 of the bill.

The last paragraph of Section 2 of the bill would provide: "Nothing in this section shall be construed to prohibit operation of Abiquiu Dam for purposes authorized by law as of the date of enactment of this Act."

Consonance with the last paragraph of Section 2 of the bill would seem to require that the wild and scenic river to be designated by Section 1 terminate at no further downstream than elevation 6307.

The segment of Rio Chama to be designated by the bill as wild and scenic is virtually fully regulated. For that reason some may find it difficult to fit it into the usual concept that a "wild" river is free-flowing. Nonetheless, carefully arranged releases from El Vado Reservoir provide opportunity for rafting.

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In an arid land any water-based recreation is particularly attractive. The rafting opportunity provided by releases from El Vado Reservoir nicely supplements the excellent flat-water recreation on the beautiful blue lake created by conservation storage in Abiquiu Reservoir.

A Corps of Engineers study shows that the recent modification of the Abiquiu Dam and Reservoir Project would make it possible to dedicate an additional 467,000 acre-feet of the 1,201,500 acre-feet of capacity below the spillway crest of Abiquiu Dam to conservation storage without detriment to the flood and sediment control purposes of the project. That dedication would, of course, require Congressional authorization.

Enactment of S.850 would most likely preclude forever use of Abiquiu Reservoir for any purpose not presently authorized. In fact, an April 13, 1987, statement of an officer of the Rio Chama Preservation Trust makes clear that that is the intent of the Trust's support of legislation such as S.850.

I am not able at this time to specify any water user or group of water users who need and are prepared to pay the cost of reallocating the capacity of Abiquiu Reservoir for conservation storage under the terms of Public Law 99-662 that was enacted last year. At a lower cost, the City of Albuquerque could use additional conservation space in Abiquiu Reservoir for the storage of San Juan-Chama Project water that the City has contracted for but does not yet need for its municipal water supply system. Water thus stored could then be sold by the City to

defray a part of its cost of acquiring the water under contract with the Secretary of the Interior.

Under the right cost and hydrologic conditions the Middle Rio Grande Conservancy District could use space in Abiquiu Reservoir to store its share of San Juan-Chama Project water, as could other entities that have contracted for San Juan-Chama water.

A week ago today, a representative of an association of Rio Chama community ditches expressed interest in contracting for water from the San Juan-Chama Project and storing it in Abiquiu Reservoir to provide a reliable water supply for the community ditches on Rio Chama below Abiquiu Reservoir.

An amendment of Public Law 99-662 could make it financially feasible for San Juan-Chama Project water users to make good use of additional storage capacity in Abiquiu Reservoir.

In the last four years there has been an abundant water supply in the Rio Grande Basin; but even those with only brief experience in the management of water in an arid state know that the next drought will be here too soon. And they understand that usable conservation storage capacity should not be given up except for most compelling reasons.

I am constrained to point out that New Mexico's El Rio Chama Scenic and Pastoral Act, which designated about 30 miles of Rio Chama below El Vado Dam as a scenic and pastoral river, provides in paragraph E. of Section 16-4-6:

> Nothing in El Rio Chama Scenic and Pastoral Act shall be construed as being incompatible with existing state property

laws. Nothing shall be construed to be incompatible with regulation of river flow for flood control or beneficial uses of water.

I respectfully suggest that deference be given State law by amending the last sentence of Section 2 of S.850 to read as follows:

Nothing in this act shall be construed to be incompatible with the operation of Abiquiu Dam for regulation of river flow for flood and sediment control and water storage for beneficial uses of water.

Even in the highly improbable event that Abiquiu Reservoir is filled to spillway crest at elevation 6350 only the last four miles, about 13%, of the wild and scenic river that would be designated by Section 1 of S.850 would be affected.

Mr. Chairman, the opportunity to present this statement is warmly appreciated.

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

BATAAN MEMORIAL BUILDING
STATE CAPITOL
SANTA FE, NEW MEXICO 87503

September 14, 1987

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
WASHINGTON, D.C. 20510

SENATE COMMITTEE ON
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WASHINGTON D.C. 20510

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The Honorable J. Bennett Johnston
United States Senator
Committee on Energy & Natural Resources
364 Dirksen Senate Office Bldg.
Washington, D. C. 20510

Dear Senator Johnston:

Herewith is a copy of the August 10, 1987, letter addressed to me by Senators Domenici and Bingaman. Also attached pursuant to the request of that letter, is a copy of my response.

Respectfully yours,

S. E. Reynolds
State Engineer

SER:pt
Attachment

cc: Senator Pete V. Domenici
Senator Jeff Bingaman

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United States Senate

COMMITTEE ON
ENERGY AND NATURAL RESOURCES
WASHINGTON, DC 20510-6150

August 10, 1987

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STATE ENGINEER OFFICE
SANTA FE NEW MEXICO

Mr. Steve Reynolds
New Mexico State Engineer
State Engineer's Office
Bataan Memorial Building
Santa Fe, NM 87503

Dear Steve:

Thank you for taking the time to testify at the Senate Energy and Natural Resources Hearing on the Rio Chama on July 27, 1987. We were pleased with the excellent testimony presented by all interested groups.

Given the numerous issues involved, increasing dam safety and water supply and water storage and the variety of viewpoints presented, we felt it would be useful to supplement the official hearing record with any additional comments or evidence you would like to submit on those issues and viewpoints.

There was a great deal of testimony related to the question of future water supply issues. Further information related to the following questions would be useful.

1. What information is available on the water needs of the City of Albuquerque and the State over the next three or four decades? How much of that need can be met through conservation initiatives? What are those initiatives and proposals?

2. What is the City of Albuquerque doing, or what can we expect to be done, to undertake alternative methods of storage, such as ground water recharge? How much of that need can be met through these alternative types of storage? What are the costs and what are the benefits related to these alternatives and what are any potential problems?

3. What comprehensive planning has the City or State conducted relative to future water needs? What is or should be done to examine alternative sites to

surface storage? Do reservoirs and aquifers provide the potential for water storage? What alternative sites have been identified?

We hope that you can provide useful information related to these important questions or any other issue raised at the hearing.

Please provide this information to each of us, as well as to the U.S. Senate Energy and Natural Resources Committee. Your cooperation is appreciated.

Sincerely,

Pete V. Domenici
United States Senator

Jeff Bingaman
United States Senator

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

September 14, 1987

BATAAN MEMORIAL BUILDING
STATE CAPITOL
SANTA FE, NEW MEXICO 87503

The Honorable Pete V. Domenici
United States Senator
434 Dirksen Senate Office Bldg.
Washington, D. C. 20510

The Honorable Jeff Bingaman
United States Senator
502 Hart Senate Office Bldg.
Washington, D. C. 20510

Gentlemen:

Your August 10, 1987, letter, received here on August 24, 1987, requests information that you believe may be relevant to the issues involved in the Senate Energy and Natural Resources Committee hearing on S.850 in Santa Fe on July 27, 1987. The questions posed in your letter are quoted below and followed by my response.

1. What information is available on the water needs of the City of Albuquerque and the State over the next three or four decades? How much of that need can be met through conservation initiatives? What are those initiatives and proposals?

A planning report completed by the U. S. Bureau of Reclamation and the New Mexico Interstate Stream Commission in 1976 uses alternative 2020 population projections for New Mexico ranging from 4.6 to 1.6 million. The corresponding water depletion requirements range from 4.1 to 3.6 million acre-feet annually, assuming no reduction in irrigation usage except that forced by the exhaustion of ground water being taken at a rate greater than the recharge to the source. The report estimates that for the medium population projection of 2.7 million, the depletion requirement will be 3.78 million acre-feet annually and that the amount of water available for depletion in 2020 will be only about 3.15 million acre-feet annually -- a shortage of 630,000 acre-feet. The report entitled, "New Mexico Water Resources Assessment for Planning Purposes," contains abundant information of the nature requested. A copy of the report can be made available to your staff at the offices of the Department of the Interior in Washington. The report is voluminous and only

our library copies remain available here. The attached statement presented by me on June 3, 1983, contains a rather succinct summary of the information contained in the 1976 report.

Also attached is a memorandum report prepared by my office and entitled, "City of Albuquerque 1982 Effect Study," which projects the water requirement and sources of supply for the City for the years 1980 through 2060. Attention is invited to the fact that the projection shows that the city will not exhaust the San Juan- Chama Project water supply of 48,200 acre-feet annually that it has contracted for until about 2030.

2. What is the City of Albuquerque doing, or what can we expect to be done, to undertake alternative methods of storage, such as ground water recharge? How much of the need can be met through these alternative types of storage? What are the costs and what are the benefits related to these alternatives and what are any potential problems?

The Rio Grande Compact's rigorous limitations on the operation of storage reservoirs constructed in New Mexico between Lobatos and San Marcial after 1929 make the utility and economic justification of additional conservation storage capacity for Rio Grande system water on the Rio Chama, or elsewhere above San Marcial, extremely marginal at best. For 38 of the 47 years (1940 through 1986) of Rio Grande Compact administration, New Mexico has been in the debit status that limits the operation of conservation storage reservoirs. A copy of the Rio Grande Compact is attached for your convenient reference.

Under present circumstances, the entities that have entered long-term contracts with the Secretary of the Interior for San Juan-Chama Project water do not yet have need for the full amount for which they have contracted and are paying. As a consequence, the regulatory storage of the San Juan-Chama Project (Heron Reservoir with a capacity of 400,720 acre-feet) has been nearly full for several years. It has been necessary for the Bureau of Reclamation in operating the Project to bypass divertible flow at the diversion works of th San Juan-Chama Project, allowing part of the New Mexico's Upper Colorado Basin Compact allocation of water to flow down to the Lower Basin. Enactment of Public Law 97-140, which Senator Domenici sponsored, has made it possible to keep 200,000 acre-feet of that allocation in Abiquiu Reservoir. At this time the Middle Rio Grande Conservancy District, the City of Albuquerque, the City of Santa Fe, the Department of Energy (Los Alamos), Taos, Espanola and Twining have a total of 187,100 acre-feet of water in storage in Abiquiu Reservoir. Of that amount about 170,000 acre-feet is the property of the City of Albuquerque.

Storage of San Juan-Chama Project water in Abiquiu Reservoir gives those who have contracted for that water the advantage of a supply that they can sell under short-term contract to defray a part of the cost incurred under their contracts with the Secretary of the Interior. That storage also provides excellent flat-water recreation on Abiquiu Lake. Col. Gonser, District Engineer for the Albuquerque District of the Corps of Engineers, has advised that Abiquiu Reservoir attracted 733,000 visitor days in 1986. That visitation may be compared to the 3,000 visitor days reported for the river reach above Abiquiu Reservoir by the Bureau of Land Management.

There is current need for additional conservation storage capacity for San Juan Chama Project water in Abiquiu Reservoir. But the estimated cost of $22 per acre-foot per year for that capacity cannot be economically justified because of the limited and uncertain demand for water under short-term contract. In this connection, it is critically important to note that the need for conservation storage capacity in Abiquiu Reservoir for San Juan-Chama Project water will decline with time as the water requirements of those contracting for that water grow and the water is applied to the uses for which it was contracted.

The important public benefits demonstrated by the visitation at Abiquiu Reservoir indicate economic justification for payment for those benefits by some entity or entities other than those contracting for San Juan-Chama Project water. Please note that as the need for storing imported water in Abiquiu Reservoir declines recreation benefits will also decline.

There was testimony at the hearing that the storage of San Juan-Chama Project water long before the time it is needed for the uses for which it was contracted allows wasteful evaporation. Under both state and federal law, this is, of course, quite incorrect. Recreation is a recognized beneficial use, not waste; and it seems clear that the imported water presently stored in Abiquiu Reservoir provides very substantial public recreation benefits. From New Mexico's perspective, allowing the water to go to the Lower Colorado River Basin could more appropriately be termed "wasteful", particularly when we are delivering more water to Mexico than the Treaty requires, and more than Mexico can use.

There was also extensive testimony critical of the management of San Juan-Chama Project water. As I recall, the testimony was that evaporation could be avoided by simply taking the imported water from the river and injecting into the aquifer from which the City of Albuquerque draws its supply. My office has made no economic analysis of that measure, but its merit is highly questionable. It would be necessary to thoroughly desilt the water to avoid plugging the injection wells, to construct

extensive works and expend costly electric energy to convey the water to the injection wells. The benefits of the injection would be so long delayed that the present worth of the benefits of the investment would be quite small.

Perhaps as critical is the fact that the water recharged by injection could not be retained in the aquifer. The increased hydrostatic head would increase the discharge from the aquifer to the river. Geohydrologists of the State Engineer Office calculate that if San Juan-Chama Project waters were injected into the aquifer at 7.5 miles from the Rio Grande near Albuquerque, the river flow would be increased by about 10% of the rate of injection at the end of 10 years. That percentage would steadily increase with time.

If water injections were undertaken too soon or too close to the river the resulting increase in river flow could exceed the amount by which Albuquerque is required to increase the flow to offset the effects of its groundwater pumping on river flow. That excess could logically be accounted as San Juan-Chama Project water by the Colorado River Basin states or as Rio Grande system water by the Rio Grande Basin states. Under the latter accounting, 43% of the excess that reached Elephant Butte Reservoir would be used on the Rio Grande Project in Texas. Under the former accounting, New Mexico would be in violation of the Colorado River Compact and the Upper Colorado River Basin Compact if any of the excess flow was used in Texas. Under either accounting, there would be no benefit to the City of Albuquerque to justify the cost of recharging the aquifer; and costly litigation before the U. S. Supreme Court could ensue.

I am advised that the City of Albuquerque intends to undertake a study of the feasibility of injecting its San Juan-Chama Project water into the aquifer. That study should provide more definitive information than is given here.

3. What comprehensive planning has the City or State conducted relative to future water needs? What is or should be done to examine alternative sites to surface storage? Do reservoirs and aquifers provide the potential for water storage? What alternative sites have been identified?

Hopefully the information sought by these questions is given by the response to the other questions quoted above.

I note that your letter lists "increasing dam safety" as one of the numerous issues addressed at the July 27 hearing. I am constrained to address my recollection that Colonel Gonser testified at the hearing that the Corps of Engineers has recently

caused a review of the structural integrity of Abiquiu Dam to be made, and that that review revealed no cause for concern about the safety of the structure, which is capable of storing 1,201,500 acre-feet of water when filled to the spillway crest at elevation 6350. I am sure that Colonel Gonser could provide more detailed information, if it is your view that dam safety is somehow a relevant issue in the consideration of S.850.

I am in full accord with Senator Domenici's statement in the Congressional Record of March 26, 1987, "... that attempting to undo a wild and scenic designation will prove an impossible task." The attached draft transcript of the statement presented by Mr.. Wallin, an officer of the Rio Chama Preservation Trust, in Espanola on April 13, 1987, makes clear that he shares that view and that making the task difficult, if not impossible, "... is exactly our intention."

I am aware of no opposition to making most of the segment of Rio Chama between El Vado Dam and Abiquiu Dam a part of the National Wild and Scenic River System for the benefit of rafting enthusiasts, even though that would preclude taking advantage of the potential for hydroelectric generation in that reach. The real issue seems to be whether the downstream four miles of the 31 mile segment proposed to be designated by S.850 is, in fact, "the heart and soul of this bill." I respectfully suggest that that issue could be fairly and wisely compromised by giving deference to state law by adopting the amendment proposed at page 5 of the statement I filed at the hearing on July 27. A copy of that statement is attached for your convenient reference.

Sincerely,

S. E. Reynolds
State Engineer

SER:pt
Attachments

cc: Senator J. Bennett Johnston

STATEMENT
before
The Water Usage and Water Resources Committee
of
The New Mexico Legislature
by
S. E. Reynolds
June 3, 1983

The use of water in New Mexico is extensively and intricately governed by law. The water law of the New Mexico Territory was initiated by Stephen Watts Kearny in 1846. The Kearny Code provided that the laws theretofore enforced concerning water courses would continue in force except that such regulation as was required was transferred from the officials of the villages to those of the counties.

In 1851 the first Territorial Legislature enacted laws providing that all of the inhabitants had the right to construct either private or community acequias to take water from whatever source they could with the understanding that they should pay the owner through whose lands the acequias ran a just compensation for the land used.

In 1891 the Legislature required the filing of a notice of the construction of water control works within ninety days of the initiation of such construction and provided that no priority could attach to water rights for such works until the notice had been filed.

In 1898, our Territorial Supreme Court said the doctrine of prior appropriation is and always has been the settled law of this territory by legislation, custom and judicial decision. It said further, in effect, that the public interest required that that be the settled law of the territory.

Under the appropriation doctrine, no one has the right to use the public water simply because it flows by, or through or under his land. In times of shortage, the right first initiated must be first served.

Most modern students agree that the doctrine of prior appropriation is a practical system for the management of water in an arid land. Development of any kind would be discouraged if the latecomer, solely by virtue of his ownership of land, could take the water supply upon which earlier investments are based; economic enterprise other than grazing in an arid state such as New Mexico would have been virtually prohibited.

The appropriation doctrine is clearly enunciated in Article XVI of the New Mexico Constitution: The unappropriated water of every natural stream, perennial or torrential, belongs to the public and is subject to appropriation in accordance with the laws of the State. Beneficial use shall be the basis, the measure and the limit of the right to the use of water. And priority in time of appropriation shall give the better right.

The appropriation doctrine is the antithesis of the "riparian doctrine," sometimes referred to as the "common law," under which the owner of the stream bank is entitled to the continued flow of the stream as against the persons upstream who might undertake to divert the flow of the stream for some purpose. Our Supreme Court has found that three elements, effected in accordance with law, are essential to a water right in New Mexico: a man-made diversion, the intent to apply the water to a beneficial use and diligence in carrying out that intention. Simply stated, our Constitution has been interpreted to mean that all of the waters of our streams and underground sources are subject to appropriation, and there can be no appropriation for a beneficial use without a man-made diversion. There can be no "instream right" under our state law. (Harkey v. Smith, 31 N.M. 521 (1926) and State ex rel Reynolds v. Miranda, 83 N.M. 443 (1972)).

The Legislature has found that the application of water to beneficial use is essential to the economic development and the welfare of the people of the state and, therefore, is a "public purpose." For this reason, the Legislature has granted to any person seeking to make beneficial use of water the power to condemn the rights-of-way and easements necessary to divert the water and convey it to the place of use (Sec. 72-1-5 NMSA 1978). That power is an essential element of the appropriation doctrine; were it not granted, the owners of the stream banks, the riparians, could frustrate the application of the public water to beneficial use by preventing access to it.

The Office of the Territorial Engineer was created in 1905 and our surface water code was amended and reenacted in substantially its present form in 1907.

The amended surface water code recognized all rights initiated prior to March 19, 1907, the effective date of the Act (72-1-2 NMSA 1978). Under that code no person may initiate the construction of works for the diversion or storage of water or change his point of diversion, or place or purpose of use without a permit from the State Engineer (Sec. 72-5-1 NMSA 1978). When a permit is applied for, the State Engineer must require a notice of the application to be published in a newspaper of general circulation in the stream system once a week for three consecutive weeks (Sec. 75-5-4 NMSA 1978). Any person whose water right might be affected may protest the granting of the permit within ten days after the last publication of the notice. If a protest is filed, there must be a hearing before the State Engineer before the application is acted upon. The hearing is quasi-judicial in nature. Evidence and legal arguments are submitted by the applicant, the protestant and, in some cases, the staff of the office of the State Engineer.

Whether or not the application is protested and a hearing is held, the State Engineer may grant a permit for a new appropriation only upon a finding that there is unappropriated water available for the benefit of the applicant. The State Engineer may approve an application to change the point of diversion or the place or purpose of use of a surface water right only if the exercise of the permit would not be to the detriment of the rights of others having valid and existing rights to the use of the water of the stream system (Sec. 72-5-23 NMSA 1978).

The Engineer's decision is subject to appeal to the district court.

Our groundwater code was enacted in substantially its present form in 1931. (Sec. 72-12-1, et seq NMSA 1978). The provisions of that code closely parallel the surface water code. Perhaps the most important difference is that the State Engineer has no jurisdiction, except to prevent waste, outside what are called declared underground water basins.

Our State Supreme Court held in a 1950 opinion (State ex rel Bliss v. Dority, 55 NM 12) that the provisions of Article XVI of our Constitution are applicable to the ground waters as well as to the surface waters of the State.

When the State Engineer finds that the waters of an underground source have reasonably ascertainable boundaries, and he so proclaims, or "declares," by describing the administrative boundaries of the basin, he asserts jurisdiction over appropriations from the source for beneficial use (Sec. 72-12-12 NMSA 1978). The State Engineer may declare an underground water basin without prior notice and hearing by filing an order with the State Records Center. The order is effective upon filing, but a public hearing on the order must be held within 30 days of the publication of a notice of the order.

Within a declared underground water basin no well may be drilled

without a permit and drilling may be done only by a well driller licensed by the State Engineer. Outside the boundaries of the declared basins the groundwater belongs to the public and is subject to the doctrine of prior appropriation, but no permit is required to drill a well and appropriate ground water for beneficial use. About 69% of the state's area -- 84,000 square miles -- is now within the boundaries of 31 declared underground water basins.

To give some historical perspective I would point out that in 1955 only about 8%, or 10,000 square miles of the State's area was within declared groundwater basins.

The essential effect of the declaration of an underground water basin is to shift the burden of proof. Within declared basins, the person seeking to make a new appropriation or to change the location of his well or the place or purpose of use of his water right has the burden of showing that the new appropriation or the change will not impair any existing water rights. With respect to groundwater appropriations outside the boundaries of declared basins, the owners of water rights have recourse to the court if they believe that their water right would be impaired, but they have no recourse before the Engineer. In seeking an injunction or damages, the owner of a prior water right would have the burden of proof.

This effect is very simply stated, but it can be crucial. Geohydrology is often complex, and sometimes nearly inscrutable, so that the burden of proof can be heavy.

A very important, but often overlooked, feature of New Mexico's water policy as set by Constitution and statutes is that all beneficial uses are on equal footing; the priority, not the nature of the beneficial use, controls. Our statutes provide certain exemptions from administrative procedures for stock and individual domestic use,

presumably because the amounts involved are small and administrative convenience can be provided without substantial risk to water right owners who remain protected against abuse or miscarriage of the administrative exceptions by the Constitutional doctrine of prior appropriation. The only other use preference given by our water policy is the power to condemn water rights for public purposes that is granted to municipalities, counties, the State, and, I presume, the federal government.

The 1907 statute (Sec. 72-4-13) directed the State Engineer to make hydrographic surveys and investigations of each source of water supply in the State beginning with those most used for irrigation and obtaining and recording all available data for the adjudication of rights to the water supply of the State. Our estimates indicate that the total irrigation water right acreage within the State is about 1,436,000 acres, including all irrigated pasture and cropland, and fallow and idle acreage. Prior to 1955, about 169,000 acres of that total had been surveyed and adjudicated. Since that time, an additional 21,000 acres have been adjudicated, and an additional 375,000 acres are currently involved in ongoing adjudication suits, including about 99,000 acres in the San Juan and Pecos River Basins that are being readjudicated. When the ongoing adjudication suits have been completed, a total of about 466,000 acres, or about 32% of the total of irrigation water rights will have been adjudicated.

One might conclude that progress on the adjudication of water rights pursuant to the 1907 directive of the Legislature has been slow. The tendency has been to devote available resources to adjudications only as circumstances made necessary. Those circumstances have been such that more than twice as much acreage has been brought to adjudication since 1955 as in the period from 1907 to 1955. Circumstances that make adjudications

necessary are court orders directing the Engineer to make hydrographic surveys for the adjudication of a stream system, projects such as the San Juan-Chama Diversion Project which blends imported water with the native waters which have already been fully appropriated, and demands for basin-wide enforcement of priorities as made by the Carlsbad Irrigation District in 1976.

Ten water rights adjudication suits involving 375,000 irrigated acres and about 20,000 defendants are pending. Six of these involve Indian water rights. Four of the pending suits are among those cases for which the 1983 Session of the Legislature made a special appropriation of $1,533,000; we have estimated that over $1 million of that appropriation will be needed for those adjudication suits.

The water law of most western states is based, at least in part, on the appropriation doctrine. It is generally recognized that New Mexico's water code is among the best in the west. For this, all three branches of State Government, the legislative, the judicial and the executive deserve much credit.

Most of the people of New Mexico probably don't fully appreciate the importance of the role that our courts have played in establishing and preserving New Mexico's water management institutions.

This is not to say, of course, that the public doesn't understand pretty well the controlling role that the legal profession plays in government.

The lawyers in the Legislative Council Service draft the bills. The lawyer legislators and the lawyer lobbyists are often the controlling factor in the enactment of legislation. The executive department officer delegated the responsibility of administering the act has a lawyer who tells him what the law requires him to do. And then the lawyers in black robes tell

the administrator what he did wrong.

I am sure you will recognize that these remarks are tongue-in-check -- an engineer baiting the lawyers as tradition requires. I must admit that to the extent I am sanguine about our water laws -- and I am -- much credit to the legal profession is implied.

Realizing the importance of water to the economy of the State and the welfare of its citizens, many logically conclude that the office of the State Engineer is vested with great power. As are many logical conclusions, that one is not well founded. The Legislature sets the policy for water management. The State Engineer can only implement that policy as it is construed by the courts. Our statutes on water fill a volume about two inches thick and the case law -- our Supreme Court opinions in water cases -- stack up another 3.5 inches on 8.5 x 14 sheets. The statutory and case law rather effectively constrain the discretion of the State Engineer. Furthermore, the State Engineer's every "decision, act, or refusal to act" is subject to appeal to the district court (Sec. 72-2-16 NMSA 1978); and this recourse is not infrequently sought.

In our system of government, judicial legislation is frowned on. But, an essential function of our courts is to ensure that the statutes are enacted and administered in accordance with the principles enunciated in our Constitution. This function is particularly difficult and essential in the interpretation of laws dealing with technical subjects such as water. The record shows that our Supreme Court has been studiously careful and has exhibited great wisdom in its opinions in water cases. With your indulgence I will cite just a few examples from the Surpreme Court opinions of the last 28 years.

In considering the Court's opinions it is important to have in

mind that our Constitution provides that the unappropriated waters of the natural streams of the State, perennial or torrential, belong to the public; that these waters are subject to appropriation in accordance with law; that beneficial use is the basis, the measure and the limit of a right to use of the public waters; and that priority of appropriation gives the better right.

In Templeton v. the Pecos Valley Artesian Conservancy District and the State Engineer (65 N.M. 59), a 1958 Supreme Court decision, the issue was whether a person having a right to divert the surface waters could drill a well to supplement his supply which had been diminished by junior appropriators drilling and operating wells which intercepted the natural discharge of an aquifer to the stream upon which the surface water user depended.

Considerations of equity might seem to make the answer clear, but our statutes and rules and regulations gave ample ground for plausible, technical argument. The effect of the Court's opinion was that the prior appropriator of stream water has the right to follow the stream water to its underground source and the right to drill wells and take the undergrou[illegible]ater necessary to fill his prior stream right, regardless of detr[illegible] to other underground water appropriators whose rights were subsequent in time to the stream rights.

In City of Albuquerque v. the State Engineer (71 N.M. 428), a 1962 decision, the question was whether the State Engineer could impose, as a condition on a permit to appropriate underground waters, a requirement that surface water usage under valid water rights be reduced by an amount sufficient to offset the effects of the groundwater appropriation on the fully appropriated stream flows.

The Court held that the Engineer had not only the power but the

duty to impose such conditions on new groundwater appropriations as are necessary to protect surface water rights in a situation where there is a significant hydrologic relationship between the groundwater source and the stream. It is interesting that in this decision the Court relied on and made clear its decision in the Templeton case.

In Templeton and Albuquerque the Court made it perfectly clear that the coordinated management of surface and groundwater is not only possible but is essential under New Mexico's Constitution. These decisions put New Mexico a quantum jump ahead of the other states in the management of groundwater appropriations. That the coordinated management of surface and groundwater is essential is now generally conceded and several states have emulated our law in this respect.

In Mathers v. Texaco and the State Engineer (77 N.M. 239), a 1966 decision, the issue was groundwater mining in the Lea County Underground Water Basin. The term "mining" denotes withdrawals in excess of recharge. In that basin the amount of water in storage in the aquifer is very large compared to the annual recharge; and any practical pattern of withdrawals can have little effect on the discharge from the aquifer in New Mexico across the Texas state line. In discussing the facts the Court termed the aquifer "non-rechargeable."

The Court held that in a geohydrologic situation such as that obtaining in Lea County, mining of the groundwater is acceptable under the doctrine of prior appropriation. The Court concluded:

> The administration of a "non-rechargeable basin", if the waters therein are to be applied to beneficial use, requires giving to the stock or supply of water a time dimension, or, to state it otherwise, requires the fixing of a rate of withdrawal which will result in a determi-

> nation of the economic life of the basin at a selected time.

In effect, the Court held that it was reasonable for the State Engineer to establish an "economic life" for the basin and to distribute the allowed withdrawals over the area of the basin to achieve an areally uniform time of depletion of the water supply and thus establish a time of use for the rights granted at something less than perpetuity.

Had the Court gone the other way the first appropriation in a non-rechargeable basin might be the last and much of our fresh underground water would have been locked in place.

State ex rel State Engineer v. Miranda (83 N.M. 443), a 1972 opinion of our Supreme Court, treated the question whether a water right had been created by the grazing and cutting of grasses on land that had been irrigated by the natural spreading of water in Abo Wash. While the court had not before addressed this specific question, it had in Harkey v. Smith (31 N.M. 521), a 1926 decision, enunciated the principles involved. In that case, the court held:

> It may be stated generally that, under the arid region doctrine, uncontrolled by statute, the appropriation of water is accomplished by taking or diversion of it from a natural stream or other sources of water supply, with intent to apply it to some beneficial use or purpose, and consummated within a reasonable time by the actual application of the water to the use designed or some other useful purpose... . Under this doctrine it is quite as necessary to make use of the water as it is to divert it; in fact no appropriation can be effected without such use. The intent, diversion, and use must coincide.

In its opinion in Miranda the Supreme Court pointed out that in the trial before the district court, the court, together with counsel for both parties, had agreed that the case would turn on one legal issue, "whether physical efforts of man resulting in visible diversion of water are necessary to the establishment of water rights in the State of New Mexico"; the Supreme Court then applied the principle of Harkey v. Smith saying:

> We hold that man-made diversion, together with intent to apply water to beneficial use and actual application of the water to beneficial use, is necessary to claim water rights by appropriation in New Mexico for agricultural purposes.

The necessity of a man-made diversion to establish a water right is perhaps the principal factor distinguishing the appropriation doctrine from the riparian doctrine of water rights. Under the latter, the riparian, the owner of the banks of the stream, has a right to the continued natural flow of the stream through or along his property. The Colorado Supreme Court, in a 1965 decision, has stated the proposition this way:

> The right to the maintenance of the "flow" of a stream is a riparian right and is completely inconsistent with

the doctrine of prior appropriation.

The New Mexico Interstate Stream Commission was created by statute in 1935 (Sec. 72-14-1 NMSA 1978). The Commission consists of nine members, eight of whom are unsalaried. Each of these eight is appointed by the governor to represent a different irrigation district or section of the State. By law the State Engineer is the ninth member and the secretary of the Commission. As its secretary, the State Engineer is the executive officer of the Commission. The Interstate Stream Commission has several important functions. Among these are the negotiation and administration of interstate water compacts. In the United States, the use of interstate streams is governed by the doctrine of equitable apportionment. Indulging in a gross over-simplification, this doctrine can be said to provide that the upstream state cannot withhold all of the water of an interstate stream and the downstream state cannot require the delivery of all of the flow of the stream. The waters of interstate streams may be equitably apportioned between states by interstate agreements, or compacts consented to by the Congress, by Supreme Court decrees or by acts of Congress.

In equitable apportionment suits between states whose water laws are based on the doctrine of prior appropriation, the Supreme Court has given great weight to the priority of appropriations in the two states, but has departed from a strict application of the doctrine of prior appropriation across states lines when necessary to protect an existing economy based on the beneficial use of water. An example is

the Court's decree in Arizona v. California, et al., (1964), which apportioned to New Mexico from the Gila River system the amount of water needed for then existing rights in New Mexico, even though some of those rights were junior to downstream rights in Arizona.

It is generally agreed that interstate compacts are preferable to Supreme Court litigation in the apportionment of the use of interstate streams among states for the reason that those negotiated agreements can give greater flexibility than is usually possible in a court decree. New Mexico is party to eight interstate stream compacts. All of our major streams are subject to one or more such agreements. One of our streams, the La Plata River, is subject to four interstate compacts. These eight compacts, one Supreme Court decree and three federal district court decrees control the beneficial consumptive use that New Mexico and our neighbors are entitled to make from most of our interstate streams.

Four of our compacts were entered with the objective of maintaining the status quo on streams already fully appropriated. They are the La Plata River Compact, the Rio Grande Compact, the Pecos River Compact and the Costilla Creek Compact. New Mexico is deeply indebted to the farmers who moved early and effectively to apply the waters of these interstate streams to beneficial use.

Three of our compacts, the Colorado River Compact of 1922, the Upper Colorado River Basin Compact and the Canadian River Compact were entered with the objective of quantifying and guaranteeing in perpetuity our rights to future development; that is, to ensure that early development in neighbor states, upstream or downstream, did not, because of the applicability of the doctrine of prior appropriation, preclude our development and use of the interstate waters.

The Animas-La Plata Project Compact was entered in 1968 to ensure New Mexico users co-equal treatment in the operation of the project authorized by the Congress to be constructed in Colorado for the benefit of both states.

The Interstate Stream Commission also has responsibility for the conduct of litigation over interstate waters. The United States Supreme Court has original jurisdiction over disputes between states; that is, the trial starts in the court of last resort. New Mexico is party to four actions presently pending in the United States Supreme Court. Arizona v. California was filed in 1952. New Mexico was impleaded in this case because of her interest in the waters of the Lower Basin of the Colorado River system. In its 1964 decree, the Supreme Court, among other things, apportioned the consumptive use of the waters of the Gila River system between the states of New Mexico and Arizona.

Texas and New Mexico v. Colorado was filed in 1966 with Texas and New Mexico alleging that Colorado had failed to make delivery of water in accordance with the Rio Grande Compact. That case is still pending under a continuance stipulated in 1968 which holds prosecution of the suit in abeyance so long as Colorado each year meets her delivery obligations under the compact. Under this stipulation Colorado has reduced her accrued debit from 944,400 acre-feet at the end of 1967 to 648,600 acre-feet.

Texas v. New Mexico was filed in 1974 with Texas alleging that New Mexico has failed to make deliveries of water in accordance with the terms of the Pecos River Compact.

Colorado v. New Mexico was filed in 1978 with Colorado seeking an equitable apportionment of the waters of the Vermejo stream system. Uses from that system in New Mexico with priorities earlier than the

turn of the century suffer chronic shortages. No appropriation, other than perhaps minor ones for stock watering, have been made in Colorado. The Colorado Fuel and Iron Company proposes to take water from the system for export to the Purgatoire River system in Colorado.

The Special Master, Judge Ewing Kerr, submitted his report to the Supreme Court on December 31, 1981. The report recommended that Colorado be allowed to take the first 4,000 acre-feet from the stream system, which averages about 5,500 acre-feet per year at the state line. The Court remanded the report to the Master for the reason that it deemed his findings inadequate for the recommended decree.

The State of New Mexico has recently prevailed (July 3, 1978) in another very important United States Supreme Court decision. United States v. New Mexico arose out of a suit for the adjudication of water rights in the Mimbres River system. Thus, this suit involves the State Engineer on his motion to intervene rather than the Interstate Stream Commission. In this case, the United States claimed that withdrawal of lands from the pubic domain for the purposes of the national forests reserved for the United States rights to minimum instream flows for esthetic, recreation and fish and wildlife purposes. The Supreme Court found that the purposes of the forest are to secure favorable conditions of water flows, that is, watershed protection, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States. The Supreme Court held, therefore, that the withdrawal of lands for forest purposes did not reserve water from appropriation under state law to maintain instream flows on the forest lands. This decision has the effect of strictly limiting the purposes for which the United States has reserved waters upon the public domain and is, therefore, of great importance in water management

throughout the west.

The Interstate Stream Commission also represents New Mexico in working with federal agencies in formulating plans for federal water projects and in seeking congressional authorization and appropriations for the construction of those projects.

Much of the construction needed to control and develop New Mexico's water resources is already in place or authorized for construction, principally in the form of federal water projects. Since 1955, about $1.4 billion worth of water projects have been completed, are under construction or have been authorized for construction in New Mexico. These projects include the Bureau of Reclamation's Navajo Dam and Reservoir at a cost of $44 million; the 110,630 acre Navajo Indian Irrigation Project at a cost of about $523 million; the San Juan-Chama Project at a cost of about $95 million; the Hooker (or suitable alternative) unit of the Central Arizona Project at a cost of $180 million; the Animas-La Plata Project, a $540 million project with a cost of $80 million allocable to water users in New Mexico; Brantley Dam and Reservoir on the Pecos River above Carlsbad at a cost of about $269 million; the Corps of Engineers and Bureau of Reclamation Middle Rio Grande Project for flood and sediment control and water conservation at a cost of about $190 million; the Los Esteros Dam and Reservoir on the Pecos River at a cost of about $40 million; and projects of the Soil Conservation Service under the Small Watershed Protection and Flood Prevention Act at a cost of $58 million with $47 million of construction completed.

The fact that the stage of development of the water resources to which we are entitled is probably further advanced than in most of the other western states may be attributed to several factors. The federal

water agencies, namely the Bureau of Reclamation, the Corps of Engineers, Soil Conservation Service and the U. S. Geological Survey have worked closely with State officials and have been most sensitive to the State's objectives and goals; New Mexico has been unusually well represented in the Congress by men acutely aware of the State's water needs. And last, but perhaps not least, we don't have as much water to develop as many of the other western states, such as California, Colorado, Oregon and Washington.

While New Mexico is well along in the development and management of her water resources and it is unlikely that we will ever need to seek authorization for major new irrigation projects, we may yet need costly municipal and industrial water supply projects such as the Gallup-Navajo Project that is currently under study, with construction costs estimated at $230 million.

In the formulation of plans for federal water projects, it is occasionally necessary for the Interstate Stream Commission to undertake to resolve controversies between local interests in New Mexico. An example is the bitter controversy between interests in our San Juan and Rio Grande basins over the authorization of the San Juan-Chama Project. In one negotiation session, I asked Dave Martin, who was then Chairman of the Board of the Bloomfield Irrigation District in the San Juan Basin, whether he wouldn't rather see some of the San Juan River water diverted for use in the Rio Grande Basin than see it stay in the stream and run down for use in California and Arizona. He replied, "No, and if somebody is going to bed with my wife, I would rather it wouldn't be my brother." Such an emotional reaction to water issues, national, regional, State and local, is not unusual.

Rain and snow bring about 85 million acre feet of water per year

to the surface in New Mexico. The acre-foot is one of those non-rigorous units that engineers sometimes use to the dismay of physicists. It's impossible to balance an equation using that unit. An acre-foot is the amount of water required to cover an area of one acre one foot deep, 325,851 gallons; 85 million acre-feet would cover the entire State a little more than one foot deep.

From the 85 million acre feet we realize about 3 million acre-feet as runoff. We also get about 2 million acre-feet of runoff from Colorado, principally in the Rio Grande and San Juan River systems, but we net little from outside the State. When we have fully put to use what we are entitled to under the compacts and court decrees governing our interstate waters, the outflow from the State will very closely approximate the inflow from other states.

We are also blessed with about 20 billion acre-feet of ground water in storage below New Mexico; that's equal to all the precipitation we can expect in 240 years -- enough to cover the entire state to a depth of about 260 feet. A little less than one-fourth of the 20 billion acre-feet is fresh or slightly saline.

In 1980 we diverted about 4.4 million acre-feet of water. Of that amount about half was from underground sources and half from streams. Of the underground water taken about half was "mined", that is, taken at a rate greater than the rate of recharge. We practice such "mining" principally on the east side and in the southwest corner of the State.

A little more than half of the water diverted was consumed, or depleted, by evaporation or plant transpiration; the balance returned to the underground sources or stream systems and was available for subsequent diversion in New Mexico or downstream states. About 87% of the water diverted for beneficial use was used for the irrigation

of a little more than a million acres of land.

All but about 175,000 acre-feet of the surface waters that we are entitled to are committed to existing or planned uses. Much of that committed has not yet been put to beneficial use. We can expect substantial stimulation of our economy as the waters made available by Navajo Dam, the Navajo Indian Irrigation Project, the San Juan-Chama Project, the Animas-La Plata Project, the Hooker or Conner unit of the Central Arizona Project and the Interstate Stream Commission's Ute Dam and Reservoir Project are applied to the intended beneficial uses.

A planning report completed by the U. S. Bureau of Reclamation and the New Mexico Interstate Stream Commission in 1975 uses alternative 2020 population projections for New Mexico ranging from 4.6 million to 1.6 million. The corresponding water depletion requirements range from 4.1 million to 3.6 million acre-feet annually, assuming no reduction in irrigation usage except that forced by the exhaustion of ground water being taken at a rate greater than the recharge to the source. The report estimated that for the medium population projection of 2.7 million the depletion requirement will be 3.78 million acre-feet annually and that the amount of water available for depletion in 2020 will be only about 3.15 million acre-feet annually -- a shortage of 630,000 acre-feet.

The projected water supply might be augmented by weather modification, importation from other states, desalting of our abundant brackish and saline water resources or by conservation, that is, more careful use of what we have. There are many questions about weather modification, not the least of which is whether we have the technology in hand. The January 1981 position of the American Meteorological Society is that

weather modification is largely still in the stage of exploratory research and experimentation. The other augmentation possibilities that I mention involve very difficult political and economic problems, the latter exacerbated in recent years by the energy crisis. Prudence suggests that in current planning we should not rely heavily on such augmentation schemes.

With four original jurisdiction contests over water pending in the U. S. Supreme Court and with El Paso challenging our water laws in the federal courts in an effort to take possibly all of the water New Mexico has below Elephant Butte Reservoir, our first priority has to be to fight and scramble to keep what we have rather than trying to augment that supply by persuading other states to let us export their water.

As a bureaucrat-engineer, I have learned that for every complex problem there is a simple answer -- and it's wrong. Nonetheless, I'll risk suggesting that if the problem is to take care of a growing population with a fixed supply of water, the solution is a change in the pattern of use.

In New Mexico a water right is a property right. The property right in a water right is what the attorneys call a "usufruct," a right to use the water - the water right owner doesn't own the corpus of the water. The water still belongs to the state as trustee for its citizens. The water right owner in effect has a franchise.

In New Mexico, water rights can be bought and sold and the right to change the point of diversion and place and purpose of use is an intrinsic part of the owner's property right, if the change can

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be made without impairing or detrimentally affecting any other water right. Under this law, water rights are available in the market place and will tend to move to the uses of highest economic value. It has been aptly said that, "water will flow uphill to money." The cities, the counties and the State have the power to condemn water rights at fair market value for public purposes. Industries do not have this power and must negotiate with the owners of water rights.

An acre-foot of water depleted in an urban-industrial culture such as that existing in the Albuquerque area, will support about 70 times more people than an acre-foot of water consumed in an irrigation economy, such as will be created by the 110,630 acre Navajo Indian Irrigation Project under construction by the Bureau of Reclamation in San Juan County.

As industrial activity and our population increase, irrigation water rights can be acquired and transferred to meet the growing municipal and industrial water requirements. An acre-foot of water applied to municipal and industrial use generally creates economic values much higher than are created by the use of the same amount of water in irrigation; municipal and industrial officials should be able to be generous in their negotiations with the owners of irrigation water rights.

Grossly generalizing, it can be said that a 15% reduction in our irrigation economy would provide the water needed to nearly double the present economy based on municipal and industrial usage.

El Paso has characterized New Mexico's law as providing for an intrastate "free market" in water. I cannot doubt that the 1907 Territorial Legislature foresaw the time when the public water would be fully appropriated and the very fundamental importance of a water right owner having the right to change the point of diversion and place

and purpose of use of his water right to meet the needs of a growing population and non-agricultural industry. But the market provided for by the 1907 law is not a water market rather it is a market in franchises to serve the public welfare by making beneficial use of the public water.

It is important to understand that the State doesn't "sell" unappropriated water -- only a very modest filing fee is paid to the State. El Paso has not offered to pay anything for the unappropriated public water of New Mexico that that city proposes to take. I think they understand.

The oft-heard statement that water is a limiting factor in New Mexico's economic development is trite and true. Water is perhaps the limiting factor in that development, but we are still far from that limit.

Obviously, meeting growing municipal and industrial needs by decreasing irrigation usage implies some consequences for New Mexico's traditions and environment; hopefully, those consequences would not be unacceptable for they may be unavoidable.

MAY 1982

CITY OF ALBUQUERQUE 1982 EFFECT STUDY

The City of Albuquerque provided this office with a population projection from 1980 through 2060 as well as a diversion demand which was based upon a per capita use of 250 gallons per day. The City also provided this office with estimates of diversion demand from the City system east of the Rio Grande and west of the Rio Grande throughout the projection period. Based upon the data provided by the City and certain assumptions made by this office, the following study was performed at the request of the City.

In order to compile the attached table, this office used certain assumptions relating to pumpage of existing and proposed wells in the City Municipal Supply System which are based upon the pattern of pumpage from all City wells from 1976 to 1981. Valley wells are assumed to have a 100% effect on the Rio Grande. Valley wells east of the Rio Grande were assumed to pump 20% of the total diversion demand for the east system up to their recognized capacity. Valley wells west of the Rio Grande were assumed to pump 2% of the diversion demand for the west system up to their recognized capacity. Additional demand is assumed to be met by vested, permitted and proposed mesa wells east and west of the Rio Grande which have a variable effect on the Rio Grande. This additional demand (over and above that which is met by the valley wells) was assumed to be pumped from the mesa wells in proportion to the percent of total capacity in the East and West Mesa wells. The study showed that the City has sufficient capacity in the wells east of the Rio Grande (valley and mesa) to meet the projected demand throughout the projection period. Further, the study showed that the City would require additional wells on the West Mesa by 1985 in order to meet demand on the west side. These additional West Mesa wells are assumed to be an average distance of 3.5 miles from the Rio Grande.

This study further assumes that the City of Albuquerque will continue to operate the sewage disposal system in the same manner as it operates today (direct return flow to the Rio Grande) and that 50% of the amount of water diverted by the City's municipal wells is returned to the Rio Grande through the sewage treatment and disposal system.

The City of Albuquerque has a vested right to divert water from wells which will ultimately have a 100% effect on the Rio Grande. The effect on the Rio Grande is variable with time due to past and projected pumpage of the City's vested wells and hydrologic characteristics of the aquifer. In 1956 the vested effect (depletion right) was 15,967 acre feet per year and ultimately the depletion right will amount to about 18,700 acre feet per annum. The City of Albuquerque also has an allocation of San Juan-Chama water amounting to 48,200 acre feet per annum.

As shown on the attached chart, this study reveals that the existing vested depletion right of about 18,700 acre feet per annum will be sufficient to offset the net depletion to the Rio Grande caused by City pumpage through the year 1990. After 1990 the City will be required to offset the additional net depletion to the Rio Grande by the release of contracted San Juan-Chama water. The San Juan-Chama water (48,200 acre feet per annum considered as on-site depletion) will offset the net depletion to the Rio Grande through the year 2025. After 2025 the City must acquire, retire and transfer or dedicate for retirement other valid existing water rights in order to offset the additional net depletion to the Rio Grande over and above the existing vested depletion right and San Juan-Chama water allocations.

D. N. Stone
District I

Senator BINGAMAN. Thank you very much. I appreciate your testimony.

The next witness is Mr. Guadalupe Garcia, who is a commissioner in Rio Arriba County.

We're very glad to have you here, Mr. Garcia.

STATEMENT OF GUADALUPE B. GARCIA, RIO ARRIBA COUNTY COMMISSIONER

Mr. GARCIA. Thank you, Mr. Chairman, and all senators.

Okay. I would like to say I'm here for the Rio Arriba County Commission. I am responding to the Wild and Scenic legislation on the Rio Chama River, which is very important in the northern part of the state and in Rio Arriba County. And now I have a reading for you guys.

I support this bill as introduced by Senator Bingaman, Senator Domenici, and Representatives Richardson and Lujan. I would like to make the following points regarding my support on this bill.

This bill, as introduced, is consistent with Resolution Number 35 as passed by the Rio Arriba County Commission on May 21, 1986, requesting all concerned individuals and entities that the permanent pool stored behind the Abiquiu Dam not be increased, and a copy of this resolution is entered as part of my testimony.

In relation to this resolution, the Rio Arriba County Commission would oppose any amendments which will allow future flexibility allowing for an increase in the permanent pool behind the Abiquiu Dam. We support all the bill as introduced with protection for the Rio Chama extending from El Vado Dam downstream on this resolution.

I also understand that passage of this bill will not affect the operation of the Abiquiu Dam for flood control.

I would also like to express some concerns about the management of the Abiquiu Dam and the Rio Chama and the Rio Grande system that this legislation will not address.

If there are any questions, I'm happy to respond to those remarks.

[The prepared statement of Mr. Garcia follows:]

COMMISSIONERS
Cecilia R. Valdez
Chairman
DISTRICT 3

Lupe Garcia
DISTRICT 2

Harold I. Romero
DISTRICT 1

Emilio Naranjo
County Manager

Rio Arriba
Board Of County Commissioners
Espanola Branch Office

BY RIO ARRIBA COUNTY COMMISSIONER, GUADALUPE GARCIA
ON PROPOSED RIO CHAMA WILD AND SCENIC LEGISLATION

I support this bill as introduced by Senators Bingaman and Dominici and Representatives Richardson and Lujan, and would like to make the following points regarding my support for this bill:

1. The bill as introduced is consistent with Resolution #35 as passed by the Rio Arriba Board of County Commissioners May 21, 1986, requesting all concerned individuals and entities that the permanent pool stored behing the Abiquiu Dam not be increased. A copy of this resolution is entered as part of my testimony.

2. In relation to this resolution, the Rio Arriba County Commission would oppose any amendments which would allow future "flexibility" allowing for an increase in the permanent pool behing the Abiquiu Dam. We support the bill as introduced with protection for the Rio Chama extending from El Vado Dam downstream to elevation 6,235 feet.

3. I understand that passage of this bill will not affect grazing rights on any of the public or private lands included in the Wild and Scenic area. I would oppose any provisions which would negate or limit present grazing rights.

4. I also understand that passage of this bill will not affect the operation of Abiquiu Dam for flood control.

I would also like to express some concerns about the management of Abiquiu Dam and the Rio Chama and Rio Grande systems that this legislation will not address.

COMMISSIONERS
Cecilia R. Valdez
Chairman
DISTRICT 3

Lupe Garcia
DISTRICT 2

Harold I. Romero
DISTRICT 1

Emilio Naranjo
County Manager

Rio Arriba
Board Of County Commissioners

The acequia systems on the Rio Chama have for years been damaged by the reduction to a trickle of the flow in the river during the irrigation season, during May and June for flood control purposes, then from July through October because of provisions of the Rio Grande Compact. Something needs to be done so that Rio Chama irrigators have a dependable supply of water during the irrigation season. And the maximum releases need to be controlled so that damages do not occur to irrigation works and to farmlands.

Another concern has to do with the flood control storage in the Abiquiu Reservoir. I feel that the aim of the water managers should be to maintain a stable reservoir level to avoid the needless flooding and destruction of private grazing lands above the reservoir, and to protect recreation improvements in the reservoir area. During the Memorial Day weekend this year, the boat launches constructed by the Corps of Engineers were flooded and unuseable. The amount of the snowpack in the Rio Grande drainage basis can be predicted fairly accurately, so why can't preliminary releases be made in all the reservoirs of the Rio Grande System so that flood control storage is available without having to cut off all water flowing in the Rio Chama, and without having to unnecessarily flood private grazing lands?

The reasons for my testimony in favor of the Chama Wild and Scenic Legislation are the same as those which led the Rio Arriba County Commission to pass Resolution # 35 last year: our concerns for the safety of the dam, the environmental damage that would result from an increase in the storage behind the Abiquiu Dam, and our desire to preserve the social and ecological integrity of a beautiful area of Rio Arriba County.

I appreciate the opportunity to express these concerns.

Guadalupe B. Garcia

COMMISSIONERS
Cecilia R. Valdez
Chairman
DISTRICT 3

Lupe Garcia
DISTRICT 2

Harold I. Romero
DISTRICT 1

Emilio Naranjo
County Manager

Rio Arriba
Board Of County Commissioners
Espanola Branch Office

P.O. Box 1256

Espanola, New Mexico 87532

RESOLUTION #8

WHEREAS, we request that you support our resolution that this status be changed by requesting or approving an increase in the permanent pool store behind Abiquiu Dam; and

WHEREAS, the lower Rio Chama irrigators wish to request authorization to increase the permanent pool storage status from elevation 6220 to 6240; and

WHEREAS, the lower Rio Chama irrigators wish to use this water for current and future needs; and to serve as a stable supply of water during lean and drought years.

NOW, THEREFORE, BE IT RESOLVED, that the Board of County Commissioners of Rio Arriba County hereby approve an increase in the permanent pool store behind Abiquiu Dam.

RIO ARRIBA BOARD OF COUNTY COMMISSION

Cecilia Valdez

Cecilia Valdez, Chairperson

Guadalupe Garcia

Guadalupe Garcia, Member

Harold Romero

Harold Romero, Member

ATTEST: Jose E. Atencio by Fino

Jose E. Atencio, County Clerk

...MISSIONERS
...adalupe B. Garcia
Chairman
DISTRICT 2

Norberto Lopez
DISTRICT 1

Leonel E. Rodela
DISTRICT 3

Emilio Naranjo
County Manager

Rio Arriba
Board Of County Commissioners
Espanola Branch Office

P.O. Box 1256

Espanola, New Mexico 87532

RESOLUTION #35

WHEREAS at the regular meeting of the Rio Arriba Board of County Commissioners held on May 21, 1986, the following was among the proceedings; and

WHEREAS the Rio Arriba County Commission supports the present status of the authorized permanent pool of 204,000 acre-feet for the Abiquiu Resevoir; and

WHEREAS we request that you support our resolution that this status not be changed by requesting or approving an increase in the permanent pool stored behind Abiquiu Dam; and

WHEREAS our concerns for the safety of the dam, the environmental damage that would result from an increase and our desire to preserve the social and ecological integrity of a beautiful area of Rio Arriba County prompt this resolution.

NOW, THEREFORE, BE IT RESOLVED that the County Commission of Rio Arriba County requests the serious consideration of this resolution from U.S. Senators Pete Domenici and Jeff Bingaman, Representatives Bill Richardson and Manuel Lujan, as well as Mayor Ken Schultz of the City of Albuquerque.

DONE at Espanola, New Mexico, this 21st day of May, 1986.

RIO ARRIBA BOARD OF COUNTY COMMISSIONERS

Guadalupe B. Garcia, Chairman

Leonel Rodela, Member

Norberto Lopez, Member

COUNTY CLERK ... RIO ARRIBA ... SEAL

ATTEST: Jose E. Atencio By Emp

Jose E. Atencio, County Clerk

Senator BINGAMAN. Thank you very much. We appreciate that.

Our next witness is Mr. Tom Bahr, who is the Secretary of the Department of Energy, Minerals and Natural Resources in Washington, D.C.

STATEMENT OF TOM BAHR, SECRETARY, NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

Mr. BAHR. Mr. Chairman, I'm still here in New Mexico.

Mr. Chairman and representatives of the Subcommittee, I am particularly pleased that these field hearings are being held here in New Mexico. I know a lot of people find it very difficult and expensive to travel to Washington, D.C., so it's very nice that you can take the time and come here to listen to the concerns of all sides of this particular issue.

New Mexico is not a newcomer to this issue, and we've long recognized the importance of the Rio Chama to fishermen, whitewater enthusiasts and others who appreciate the real beauty of this precious resource that we have in the northern part of the state. I will summarize my testimony so as not to be too duplicitous here.

As you indicated, the state of New Mexico passed a Rio Chama Scenic and Pastoral Rivers Act, and this was to give interim protection to the Rio Chama until the Federal government could really address this issue in the formal sense.

I should point out that while this legislation specifically supported inclusion of the Rio Chama into the Wild and Scenic Rivers Program, as Mr. Reynolds pointed out, the language of this state law indicates that, "Nothing shall be construed to be incompatible with regulation of river flow for flood control or beneficial uses of water." I'm told that if this language had not been added to that bill, it never would have been passed.

This language is a clear expression of the policy as it relates to the Rio Chama, which was enacted into law over a decade ago by the state of New Mexico. And this policy balances the desire to preserve the Wild and Scenic characteristics of the Rio Chama, but also at the same time allows for additional future storage at Abiquiu for beneficial uses of New Mexico citizens. I am here today simply to reaffirm a policy that has already been adopted by this state, and this present administration agrees with this policy.

Although we support the Federal legislation to designate a portion of the Rio Chama as Wild and Scenic, as presently drafted, this Scenic portion of this stream would fall well below the spillway elevation of Abiquiu Dam. This designation would effectively prevent additional storage in the reservoir beyond what is currently authorized.

Now, some might argue that we cannot economically justify additional storage today. But, who can be so bold as to project that additional storage will never be economical?

It might also be argued that if at some time in the future, economic justification could be put forward, the Congress could simply remove the scenic designation for the lower reaches of the river. I find this argument unreasonable, because Federal Wild and Scenic Designations are very similar to Wilderness Designations, in that they are intended to be permanent in nature.

To preclude additional storage at Abiquiu—and I am speaking from a state-wide perspective here—is not only unreasonable, but I think it is foolish. New Mexico is one of the most arid states in the nation. And to give some numbers here, within the next two decades, our projected in-state water demands for the state as a whole are going to exceed the available supplies we have. By the year 2020, we are looking at a deficit situation in the neighborhood of in excess of 600,000 acre-feet. Now, as I said, these are just in-state demands.

Currently, in the southern part of the state, we have a friendly neighbor to the south in the City of El Paso who is attempting to get an additional quarter of a million acre-feet of New Mexico water. Texas as a whole by the year 2020 is looking at a deficit situation of in excess of 10 million acre-feet of water per year. So, we have to take a very broad look at this particular issue, and I think by maintaining an option to more fully utilize the existing storage of Abiquiu, we can avoid burdening future generations of the state of New Mexico with costly new flood-control or water-storage projects. Also, these projects' environmental consequences are not well-understood at this time.

I have suggested in my written testimony some amendments that are consistent with what Mr. Reynolds indicated. But, I would like to simply re-emphasize that we must not tie our hands today by limiting our future water-storage options and at this time cheapen—and I'm serious about this, cheapen—the inclusion of the Rio Chama in a national system, knowing full well at some time in the future we may need to reverse ourselves and lift that designation.

At the present time, there may be little demand for additional storage at Abiquiu, and whitewater and in-stream flow users are going to have a run of the river for the entire reach and very possibly for a long time to come. But, we have an unusual situation here in the last few years where this has made it a little bit difficult with high water.

But, I don't see this as an either/or issue. I think we can have both additional storage potential for Abiquiu and at the same time have a practical program of whitewater use for those that enjoy that type of recreation.

Thank you.

[The prepared statement of Mr. Bahr follows:]

Testimony Presented to the Public Lands, National Parks and Forests Subcommittee of the U. S. Senate and Energy and Natural Resources Committee

on:

Senate Bill 850, designating a segment of the Rio Chama as a component of the National Wild and Scenic Rivers System.

by:

Tom Bahr, Secretary
New Mexico Energy, Minerals and Natural Resources Department

July 27, 1987
Santa Fe, New Mexico

Mr. Chairman and members of the subcommittee, I am Tom Bahr, Secretary of the New Mexico Energy, Minerals and Natural Resources Department. I am representing the Honorable Garrey Carruthers, Governor of the State of New Mexico. We appreciate the subcommittee traveling to New Mexico to conduct this important hearing today on S.850 regarding the designation of the Rio Chama as a Wild and Scenic River.

New Mexico has long recognized the importance of the Rio Chama to fishermen, whitewater enthusiasts and others who appreciate the beauty of this precious resource. We have invested significant resources in ensuring long-term public access to the Rio Chama and have worked to establish a weekend release program during the late summer months in order to enhance recreational use when other streams in the arid southwest normally do not provide boatable flows.

In 1977 the New Mexico State Legislature enacted the El Rio Chama Scenic and Pastoral Act as a means to provide interim protection to this valuable resource until such time as the federal government could consider the matter. I should point out that while the state legislation specifically supported eventual inclusion in the national wild and scenic rivers system, this law also expressly states that "Nothing shall be construed to be incompatible with regulation of river flow for flood control or beneficial uses of water." This language is a clear expression of state policy, enacted into law a decade ago, that recognizes the importance of reservoir management in our water-scarce state. This policy balances the desire to preserve the wild and scenic characteristics of the Rio Chama while at the same time allows for additional future storage at Abiquiu for beneficial use of New Mexico citizens. I am here today to

reaffirm that the present administration still recognizes and agrees with this policy.

Although we support federal legislation to designate a portion of the Rio Chama as "Wild and Scenic", S.850 as presently drafted would extend the "Scenic" portion of the designation well below the spillway elevation of Abiquiu dam. This designation would effectively prevent additional storage in the reservoir, beyond what is presently authorized. It might be argued that we cannot economically justify additional storage today but who could be so bold as to project that additional storage will never be economical. It might also be argued that if, at some time in the future, additional storage could be justified, Congress could simply remove the "Scenic" designation for that lower reach of the river. This argument is unreasonable because federal wild and scenic river designations are, as in the case with wilderness designations, intended to be permanent in nature.

To preclude additional storage in Abiquiu is not only unreasonable, it is foolish. New Mexico is one of the most arid states in the nation and our projected in-state water demands will exceed our available supplies within two decades. By maintaining an option to more fully utilize the existing storage capacity of Abiquiu Reservoir we can avoid burdening future generations of New Mexicans with costly new

flood control or water storage projects whose environmental and economic impacts can be avoided.

We strongly recommend that the S.850 be amended such that the Wild and Scenic portion of the Rio Chama be limited to extend from the El Vado Ranch launch site downstream to an elevation of 6,353 feet. We support the present language directing the Bureau of Land Management and U. S. Forest Service to manage the 5.7 mile segment from elevation 6,353 downstream to elevation 6,253 in order to maintain its wild and scenic character, however, we recommend that additional language be added to bring this section of the bill more in line with existing state law. This language should state that management by the Bureau of Land Management and U. S. Forest should not interfere with operations of Abiquiu Dam for regulation of river flow for flood and sediment control and water storage for beneficial uses.

I would again re-emphasize that we must not tie our hands by limiting our future water storage options and at the same time cheapen the inclusion of the Rio Chama in the national system by designating a portion of it knowing full well that at some time in the future that designation may need to be lifted.

At present there may be little demand for additional storage at Abiquiu Dam and whitewater users will have run of the river for the entire reach, very possibly forever. But it is poor public policy for us to limit our management prerogatives at this time. Although debate over recreation has focused largely on whitewater activities, I would be remiss in not pointing out that slack water recreation in Abiquiu Reservoir presently generates approximately $1.6 million per year in economic benefits. Projecting present boating densities to a maximum expanded size of the lake would generate an additional $3 million per year.

We would hope that the Congress will move swiftly in designating the 26.75 miles of the Rio Chama above the spillway elevation of Abiquiu Dam as Wild and Scenic as it so richly deserves, and that you not foreclose on the option of the citizens of this arid state to, at some time in the future, utilize storage capacity available at an existing reservoir. The interim result will be to assure full wild and scenic protection above the maximum Abiquiu Reservoir pool while having practical wild and scenic management operations below for the foreseeable future.

Thanks again for allowing this new administration the opportunity to present the position of New Mexico State Government this morning.

Senator BINGAMAN. Thank you very much. Let me ask a few questions of Mr. Larranaga. As I understand it—just tell me if this is consistent with your understanding—Albuquerque is guaranteed its entitlement to the San Juan-Chama water by Federal statute and contract, and that is regardless of what is stored at Abiquiu; is that correct?

Mr. LARRANAGA. Yes. As I understand it, Senator Bingaman, that is correct.

Senator BINGAMAN. All right. It's also my understanding that there is presently water storage of about 800,000 acre-feet for Albuquerque at Herron, El Vado, and Abiquiu together; is that right?

Mr. LARRANAGA. Senator Bingaman, let me just ask Gary Days from my staff, who was been involved with this for the last ten years, to answer that particular question. I can give you a general answer, but I want him to be specific.

Gary.

Senator BINGAMAN. Okay, fine.

Mr. DAYS. It has not been ten years. Some people might think it has, but it hasn't been. I've been working in this area for at least three or four years.

I don't believe we have 800,000 acre-feet of storage. First of all, when the water is in Herron, before we take delivery, that is water from which we take delivery. I might be making a semantical distinction, but it's not our water. But, I believe the capacity is somewhere around 150,000. I don't know what it is. It could be larger, but I forget. I was just told about this.

We have at this point in El Vado Reservoir about 75,000 acre-feet. We have assurances which are not terribly strong, but probably in the long term we can keep it there. All of this water, they can borrow. Some of it, they won't have to pay it back. Others, they would create a debt. This was through prior arrangements.

We have a 170,900 acre-feet allotment in Abiquiu right now, and it is full.

We have some water in Jemez which is essentially a gift to the State or to Steve Reynolds and the Interstate Stream Commission. We called it a lease, but it was just to fill the sediment pool at Jemez. We can't get that water back. We only have a capacity for 50,000 at Abiquiu.

Senator BINGAMAN. Okay. Let me ask. My understanding is that Albuquerque does have rights to this San Juan-Chama water. It also has rights, of course, to the Rio Grande water and much or perhaps all of what is being used today in the Rio Grande aquifer water. Do I understand that the City of Albuquerque has a basis to believe that your present storage in either the Rio Grande aquifer or the present storage you have is inadequate for Albuquerque's needs in the foreseeable future?

Mr. DAYS. We participated in a recent study, and the conclusion of the study—in which I think the City concurs—is that right now, we don't need additional storage or can't justify it. We concur with the Jicarilla Apaches that at this point, if we got additional storage, it would be primarily for evaporation. We haven't been able to sell the water as we would like. And, therefore, in the short-term—in that short term of maybe 10, 15, or 20 years—we are going to forego delivery. We have made the conscious decision to do that.

We are going to forego delivery, and this will go down, hopefully, to the Reservation, but certainly into Arizona and California. But, that doesn't mean that there might not be some other needs.

In our study that Mr. Larranaga alluded to, we don't know whether the aquifer has enough water in it or not or whether there might be some problems with the aquifer. We would like some options left open to go along with other options that I alluded to earlier. We don't think the options are necessarily mutually exclusive.

Senator BINGAMAN. Mr. Steve Gallegos, who is the City Councillor in Albuquerque, is here, and he was intending to testify. Maybe he can come forward, and go ahead and give his testimony before we do any other questions.

STATEMENT OF STEVEN D. GALLEGOS, ALBUQUERQUE CITY COUNCILLOR

Mr. GALLEGOS. Thank you, Senator.

Good morning. Mr. Chairman and members of the Committee, did you all get a copy of my statement?

Senator BINGAMAN. We have it right here, yes.

Mr. GALLEGOS. I appreciate the opportunity to be here today to present my views on the designation of the Rio Chama as a Wild and Scenic River.

In November of last year, the Albuquerque City Council, Finance and Government Operations' Committee, which I chair, held a public hearing on the issue of storage of additional water at Abiquiu Reservoir. Based on the committee's favorable recommendation, and lacking any significant testimony to the contrary, the Council enacted a policy-setting resolution—Resolution 183, Enactment Number 177–1986. A copy of that resolution is attached.

The intent of the resolution, both from my perspective and other Council Members that voted for it—eight for and zero against—was to deter the City from any actions that it was taking in its pursuit of increased water storage at Abiquiu. During the public hearing on the bill, many people spoke of the harm which would befall them, their farms, their grazing lands and the environmental and scenic damage which would result from additional storage. There was little evidence that increased storage had a measurable economic value, and it was certainly not enough to warrant further investment by the City, especially at even the lowest costs quoted by the Corps.

It was also recognized in this resolution that the City benefits from recreational use of the Rio Chama and that a national Wild and Scenic Designation was being sought. All these concerns led to the resolve that the City should not obtain additional storage in Abiquiu Reservoir unless it could be clearly demonstrated that there was a solid economic justification, and that the benefits outweighed the above-noted concerns. This strong statement was meant to put the onus for proof of such benefits on the Public Works Department and the City administration.

I am dismayed and upset that the City administration continues to actively pursue a pro-expansion policy in the press, with the Corps and now here before this Subcommittee, despite the enactment of this resolution. [Applause.]

If the administration wishes to continue the pursuit of storage expansion, they should, in keeping with R–183, justify the economics of that decision to the City Council.

In lieu of the increased storage, the department was directed to pursue alternative uses of the City's San Juan-Chama water to include aquifer recharge and improved marketing effort.

The City Council recently funded a water-marketing study which hopefully will give the Public Works Department further guidance. Also, the department just released a request for proposals for a major study of the aquifer underlying Albuquerque, which should provide data necessary in considering recharge as an option.

As is true with all legislation, Resolution 183 was a compromise. However, the weight of the testimony and opinion of the Albuquerque City Council was in favor of the resolution, which joins with northern New Mexicans, the Rio Arriba County Commission and other concerned citizens in opposition to increased storage.

If increased storage cannot be justified at this time, then there is absolutely no reason to withhold the protection of the Wild and Scenic Designation for the Rio Chama. If a true need arises in the future, Congress can override this designation.

At the present time in Albuquerque, we are considering several tax proposals. Besides the need for additional funds for basic services, we are seriously looking at supporting several major projects which will add to the quality of life in our city. These include $30 million for open space; $40 million for a Center for the Performing Arts; $10 million for an International Balloon Museum; and $5 million for botanical gardens. We have already approved the funding of a $15 million Convention Center expansion, and all of these projects have the purpose of enhancing life in Albuquerque and New Mexico. I believe the Wild and Scenic Designation will fulfill this purpose, as well as, and what is more, we won't have to increase taxes to make it happen. [Applause.]

In conclusion, I wholeheatedly support Senate Bill 850 as it is written. It in no way interferes with the perceivable present or the future needs of Albuquerque and, in fact, enhances the recreational opportunities and the attractiveness of living there.

Thank you again for this opportunity to address the Committee. If there are any questions, I would be pleased to answer them.

[The resolution follows:]

CITY of ALBUQUERQUE
SEVENTH COUNCIL

COUNCIL BILL NO. R-183 ENACTMENT NO. 177-1986

SPONSORED BY: Steve D. Gallegos

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RESOLUTION

SETTING POLICY REGARDING THE STORAGE OF ADDITIONAL WATER AT ABIQUIU RESERVOIR AND CALLING FOR AN INVESTIGATION OF ALTERNATIVES FOR THE USE AND DISPOSITION OF SAN JUAN-CHAMA WATER.

WHEREAS, the City's participation in the San Juan-Chama water supply project has guaranteed the City a long-term supply of water for municipal use, in the amount of 48,200 acre feet per year; and

WHEREAS, the City will at some point in the future consume its full allotment of San Juan-Chama water, but at present does not consume any and sells only a small portion; and

WHEREAS, the City has the right to store 170,900 acre feet of San Juan-Chama water at Abiquiu Reservoir which, together with other users of the Reservoir, has exhausted the authorized capacity for conservation storage at Abiquiu Dam; and

WHEREAS, the U.S. Army, Corps of Engineers has estimated that storage of additional San Juan-Chama water at Abiquiu Reservoir would cost between $6.50 and $23.60 per acre foot per year depending on whether sunk costs are included and the amount of storage desired; and

WHEREAS, additional stored water will not augment the long-term water rights available to the City, and may provide only minimal benefit to the City for the next forty years; and

WHEREAS, substantial funding may be required in the future for the City to purchase supplementary water rights for future population expansion; and

WHEREAS, temporary non-delivery of San Juan-Chama water does

not, according to the contract with the U. S. Department of Interior, Bureau of Reclamation, jeopardize the City's right to future deliveries of San Juan-Chama water as and when needed; and

WHEREAS, additional storage of surplus water at Abiquiu Dam would have the impact of damaging an important recreational and wilderness resource for City residents, the Rio Chama; and

WHEREAS, the Rio Arriba County Commission has by resolution opposed any increase in permanent storage at Abiquiu Dam; and

WHEREAS, there is an initiative by some Albuquerque residents to secure Congressional recognition for the Rio Chama as a National Wild and Scenic River.

BE IT RESOLVED BY THE COUNCIL, THE GOVERNING BODY OF THE CITY OF ALBUQUERQUE:

Section 1. That the City should not obtain additional storage for its water in Abiquiu Reservoir in the absence of a clear economic justification and a determination that the benefits of such storage to the City outweighs any adverse effects.

Section 2. That the Public Works Department shall investigate alternatives for use and disposition of the City's annual allotment of San Juan-Chama water. These alternatives shall include but are not limited to: aquifer recharge and the selling of water for industrial, agricultural and municipal uses.

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PASSED AND ADOPTED THIS 15th DAY OF December, 1986.

BY A VOTE OF 8 FOR AND 0 AGAINST.

Yes: 8
Excused: Hill

Patrick J. Baca, President
City Council

APPROVED THIS 29TH DAY OF DECEMBER, 1986.

Ken Schultz, Mayor
City of Albuquerque

ATTEST:

City Clerk

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Senator BINGAMAN. Thank you very much for that testimony.

Let me just ask one other question, and then I'll defer to my colleagues here.

Does the City of Albuquerque have an aggressive program of acquiring water rights within the Rio Grande Basin which is going forward to deal with future water problems, as well?

Mr. LARRANAGA. Senator Bingaman, the City of Albuquerque is aggressively pursuing every water right that it can acquire that is up for sale around the area of Albuquerque when it can.

Senator BINGAMAN. And has the City had good success with that effort?

Mr. LARRANAGA. Mr. Chairman, yes, sir, it has had some success—not as much we would like, but some success at that, yes.

Senator BINGAMAN. And does the City depend totally on the Rio Grande water now for its needs?

Mr. LARRANAGA. Well, Senator Bingaman, what we depend on right now is the groundwater in and around Albuquerque that we are pumping.

Let me tell you what initiated part of that study is that, in the last three years, the water level for the City of Albuquerque where we're pumping has dropped 20 feet. So, we are concerned that the groundwater may not be recharging as quickly as we are having to use it in Albuquerque; and, therefore, we are concerned about the problem that is there. But, we also reiterate the fact that Albuquerque is growing at 5 percent. In the next 20 years, Albuquerque will double—or, if not, at least the surrounding areas, will double—in population, which means Albuquerque is going to have to look at water support not for the 460,000 people that we have today, but the 850,000 to 900,000 population there in about three years.

Senator BINGAMAN. As I understand it, a good deal of the water needs of increased population are generally and have historically been satisfied by the retirement of land previously used for agricultural purposes; is that not right?

Mr. LARRANAGA. Up to now, Senator Bingaman, that is correct. We have been able to obtain that, and we have been seeing that being addressed that way.

Senator BINGAMAN. Senator Domenici.

Senator DOMENICI. Might I ask Mr. Reynolds first?

Frankly, what I'm hearing, Mr. Reynolds, leads me to believe that there is really no value to the future water rights obtained by the City of Albuquerque in the San Juan-Chama Diversion agreement with the Federal government. Is that true or not?

Mr. REYNOLDS. No, sir, that's not true.

Senator DOMENICI. Well, what good are they?

Mr. REYNOLDS. Well, Albuquerque is in better shape than any city in the Southwest with respect to its water futures; and, of course, that's very important to the economic development of the City. Their low allocation of San Juan-Chama water, which is about 48,000 acre-feet a year, will be fully used by about 2020.

Senator DOMENICI. What does "fully used" mean?

Mr. REYNOLDS. That means that it will have to be released into the river to offset the effects of their groundwater pumping.

Now, they'll need to retire additional rights after that time to offset the growing effects of the groundwater pumping that they

had done up to that time. Studies we have to date indicate that there will remain a balance between the aquifers on both sides of the river and the river with that full commitment of San Juan-Chama water to maintain the flow of the river against the effects of Albuquerque's pumping.

Senator DOMENICI. All right. Obviously, my question was asked somewhat facetiously. But I'm not able at this point to quantify and understand why it is significant. You have just given us its significance at a very distant point when we will be setting it off almost acre-foot for acre-foot. We will have to return the water to the river, because we will have depleted the basin.

But now, let me ask the next question. To what benefit, for the future, is the desire of Albuquerque to store future water now?

Mr. REYNOLDS. Well, there are two things that can be done with the storage of Albuquerque's water in Abiquiu Reservoir. First, if they have a supply that is available, if somebody comes along with something—like the wine growers that have already contracted for some of the City's water—other things could happen where people would be pleased to pay for that water. That's helped Albuquerque defray a part of its cost. That is, they pay $40 an acre-foot for that water, whether or not they are able to take it out of Herron Reservoir and put it to use.

So, the other advantage that I see out of Albuquerque's imported water is, based on what's going on right now with the 200,000 acre-feet—not all of which is Albuquerque's incidentally, there are Santa Fe, Espanola and others that have some interest in that water—but their beautiful recreation up there. This accounts for the 600,000 visitor days at Abiquiu Reservoir in 1986. And if they were able to store more water, then that blue lake would attract even more people for flat-water recreation. [General laughter.]

Senator DOMENICI. At that point, that conflicts with another kind of use that is being promoted here. We have to weigh a kind of recreational use. So you're speaking of one recreational use, and the bill is speaking of another.

But, Mr. Reynolds, let me ask now. I understand this is very fragile and difficult in terms of 30 or 40 years. As I understand it, what we're really saying is that we probably could, by authorizing additional capacity in this Reservoir, we could take care of substantially more future water needs. And we would have to do that as an Act of Congress. Now if there is no scenic river within the potential reservoir pool, any more water storage would be still be a decision to be made by the United States Congress, asked for by citizens somewhere in the state of New Mexico—Albuquerque or someplace else. Is that not correct?

Mr. REYNOLDS. That, Senator, is as I understand it.

Senator DOMENICI. Right. Then, the real issue is, what does Wild and Scenic designation on approximately the bottom four miles mean, because there's no way that you're talking about more than that, because this dam, if ever filled to capacity, only goes that far——

Mr. REYNOLDS. Yes.

Senator DOMENICI. So the real question is, how much more difficult would that designation make the issue at some time in the

future if it did reach the point where it had to be decided? That is the issue as I see it.

Mr. REYNOLDS. Mr. Chairman and Senator, it's difficult for me to judge whether the Congress would ever disestablish a Wild and Scenic River. But, it's been made very clear at several hearings up in Espanola that that is the purpose of seeking a Wild and Scenic River Designation—to prevent any more than their presently authorized operations at Abiquiu Reservoir. And it seems to me, in my brief experience with the Congress, that that would be a very difficult thing to do—to disestablish a Wild and Scenic River.

Senator DOMENICI. I have just one last question, for the City Councilman. If this is hypothetical, and you care not to answer it; I think I have to answer it eventually myself, so perhaps it's fair to ask it.

Assume that, as you have stated, there is no current—and that means 15 or 20 years—need for additional storage by the City of Albuquerque, and yet there was the prospect that there might, indeed, be a need for substantial additional storage beyond that. If I said that we could manage the last 4 miles of this river as if it were Wild and Scenic, with the 27 miles above it declared Wild and Scenic, but that last 4 miles was in all respects managed in the same manner, but 25 years from now, we desperately need the water, and it might be somewhat easier for Congress to authorize additional storage if that last four miles was simply managed as I described, versus being Wild and Scenic, would you give that consideration, or would your statement remain the same, that the river ought to be officially and unequivocably Wild and Scenic?

Mr. GALLEGOS. My statement remains the same, Senator. I think it is important that we do look at that realistically in terms of the growth in Albuquerque and our needs. But the matter of the fact is, up to this point, we have not got proof in front of us that lets us know that.

Senator DOMENICI. I understand that.

Mr. GALLEGOS. So, the other part of that is that in terms of quality growth for Albuquerque, I think it's going to put the Water Department in the position of not only having to justify it to the City officials of the City of Albuquerque, but also to the Congress. I think that is very important, because we are not dealing just with the quality issue of Albuquerque in our growth and development, but we are also dealing with the quality issue on the Rio Chama. And my concern is that we leave it open. If we leave the designation open, managed as you proposed under the management plan, that is going to take the responsibility off of City officials. It's going to take the responsibility off the City Water Department to justify the need for that change.

Up to this point, every argument that I've gotten from the City Water Department has not been good, and I think we need to make them responsible. [Applause.]

Senator BINGAMAN. Congressman Richardson.

Mr. RICHARDSON. Thank you, Mr. Chairman.

I want to get a couple of facts straight about the issue of additional storage and costs for the City of Albuquerque. It's my understanding that at the City Council hearing that occurred—was it last year——

Mr. GALLEGOS. Yes, sir.

Mr. RICHARDSON [continuing]. That the City couldn't justify paying much more for new water storage at Abiquiu than it is currently paying right now. Mr. Larranaga, how much is the City paying right now per acre-foot?

Mr. LARRANAGA. Mr. Chairman and Congressman Richardson, I am going to defer again to staff and Mr. Days to answer that particular question.

Mr. DAYS. We're paying, by the legislation, incremental costs to the Corps of Engineers, and they're very insubstantial. I think it's like $3,000 or $4,000. Maybe the Corps has a better number. But they're very small, particularly per acre-foot per year. The City did have the expense of going out and obtaining the permanent easements, which was more substantial; yet, that was fairly insubstantial, also.

Mr. RICHARDSON. I think I'm missing something, because I sense something in the testimony of Mr. Larranaga and the Councillor and Mr. Reynolds. Where does the extra San Juan-Chama water play in the future water needs in Albuquerque? It doesn't seem to have much priority in terms of your future plans. Is that an accurate statement?

Mr. LARRANAGA. Mr. Chairman and Congressman Richardson, let me address it this way. The future for water—or at least that particular water for the City of Albuquerque—is in two or three folds. One is the expected growth, as I mentioned a while ago. The other one is the recharge of the groundwater that we have there. You could take this water and artificially recharge that groundwater to be able to sustain a larger population if that is the decision that we had to go with.

We are also going to have to address the problem that if we don't have that aquifer there that will recharge itself to provide that water for the growth for the additional people in Albuquerque, then we're going to have to find someplace where it's actually water—not water rights, but I mean wet water—to provide for the City of Albuquerque. [General laughter.]

Mr. RICHARDSON. I guess we're not doing very well on the water sales, either. Let's assume that you're able to double the storage at Abiquiu Dam. God help us if that's the case for the damage. Now, how would that resolve your surplus water problem? Say we filled it up in four or five years. Wouldn't you still have the surplus water problem?

Mr. LARRANAGA. Mr. Chairman and Congressman Richardson, I'm going to allow Gary Days to answer that. [General laughter.]

Mr. DAYS. The City's present position is, we do not seek additional storage. The City's present position is that, in fact, it is what the Jicarilla Apache spokesman said. That storage would essentially evaporate unless we can get substantial new sales. Our position might change in a few years. We don't expect it will. The water will be needed, as Mr. Reynolds indicated, to recover or to make up for effects on the river that we've already had and will have with population growth.

Let me make another point. With the San Juan-Chama water—42,800 acre-feet—with our vested water right of about 220,000 acre-feet, that will serve about 60,000 more than we're serving right

now. We need additional water. We don't know whether it will be surface water or what it will be.

In 20 years, we might need the storage. We don't need it today. We need it, but we don't need it enough to pay for it, I guess. We're not asking for it. [General laughter.]

Mr. RICHARDSON. Well, Mr. Reynolds, you have written the Congress asking us to consider a lower cost, and I think you wrote Senator Domenici that the price for additional storage, which is about $20 per acre-foot, be reduced to buy more storage. Do you think that we should lower the cost for storage at Abiquiu so it's more attractive to municipalities to use it? What if the storage were only, say, $1 per acre-foot? What would that do, Steve?

Mr. REYNOLDS. Mr. Chairman and Congressman Richardson, there are some costs in Abiquiu Reservoir.

Mr. RICHARDSON. There are what?

Mr. REYNOLDS. Some costs. It's been spent, and it was spent initially, as has been here testified, for flood control. It became apparent that some of that space could be used for conservation storage.

Now, the Federal government would lose little, if anything, except operation costs, which is about what Albuquerque pays now, which, as has been said, is very nominal.

Now, the Federal government might make a little money by recovering some of that that they spent for flood control. But, it seems to me that the rate of $22 per acre-foot per year for conservation storage is too much.

Mr. RICHARDSON. Mr. Gallegos, the City Council unanimously passed your resolution. So, the Mayor is opposed. But, was your resolution passed unanimously? Is it the entire City Council's position?

Mr. GALLEGOS. It was passed on a 8–0 vote with one Councillor absent. I don't remember which one it was that was absent at that time.

Mr. RICHARDSON. Okay.

Mr. Bahr, I have just one question that is related, and it relates to a program of the last three years for the contract that I think your department has—and I know you weren't around in the last three years in the position you're in now—that dealt with the securing of the summer-weekend releases' program with the City of Albuquerque contract. And I've had a number of complaints that these releases haven't occurred with any frequency or reliability, and I wonder why we can't implement this program more effectively.

Mr. BAHR. Mr. Chairman, Congressman Richardson, the State of New Mexico Natural Resources Department in the past couple of years has served really to facilitate or to achieve a weekend-release program, whereby flows could be increased on the weekends to enable commercial rafting operations to book in advance. We have found that in the last year, because of the extremely high water levels, it has been difficult to get really the users of that water all to agree on what the details of that program are.

The state of New Mexico—my department—is not a water user. We are a facilitator, and we will do anything we can to try to get a weekend-release program; but, if the users of that water do not agree, then our hands are pretty much tied.

Mr. RICHARDSON. Now, it's the City; right, Steve?

Mr. REYNOLDS. Mr. Chairman, if I may respond?

Mr. RICHARDSON. Go ahead.

Mr. REYNOLDS. I think most of it has been with the Middle Rio Grande Conservancy District, and an essential element of the weekend release is storage in Abiquiu Dam. And if there's no storage capacity there, then the Middle Valley cannot release its water in big bursts on the weekends, because that is not the way they need it. They need to store it and re-regulate it to the Abiquiu Reservoir.

Mr. RICHARDSON. But, in light of the record flows of the Rio Grande Basin, it would seem to me that we would want to authorize these releases. I'm still trying to find out who authorizes these releases.

Mr. DAYS. May I discuss it? I've had many discussions with the State and so on.

The City of Albuquerque has the agreement that he was referring to against two elements—to make and to hold the Elephant Butte rec. pool and to authorize up to, I believe, 20 weekend releases if we're able to do that. And the problem has been that our space in Abiquiu is full. We can't run San Juan-Chama water down the river without a destination. Steve won't let us. [General laughter.]

And we have no destination. Elephant Butte is spilling, so we can't move it to Elephant Butte. Therefore, what we have done—and the users have accommodated to the extent legally possible, the Middle Rio Grande Conservancy District and the City—when we get evaporation out of Abiquiu enough to accommodate weekends, that weekend is accommodated. And this year, we tried to do the 4th of July, which was done, and Labor Day, which was done.

One of the reasons we're not allowed to send water down the river is because they're flooding south of El Paso. So, it isn't quite as simple to dispose of this water as you may think. This excess water is causing problems.

Mr. RICHARDSON. You know, the City of Albuquerque has the most remarkable futuristic policy. [General laughter.]

And I think you're really planning ahead and protecting yourself. But I think as we deal with this river and water flow and storage and costs, we ought to look at the present. You know the old saying, "The future is now." I wonder if maybe you've got too many long-range planners over there. [Applause.]

Senator BINGAMAN. Let me just ask one other question here, before we dismiss this panel. Am I right that everybody here agrees that there are other options for storage of this water that Albuquerque needs? I mean, there's been some reference to it. Mr. Larranaga, you said that you could take this water and recharge the ground water aquifer. I guess the City Council has asked that a study looking into that and other options be considered or be pursued. Is that your position?

Mr. LARRANAGA. Well, Mr. Chairman, that is going to be the position that we take is that that is one of the options we look at—to artificially recharge that aquifer where we are presently pumping

water. But presently, we have no other place to store any of this water.

Senator BINGAMAN. In addition to the aquifer?

Mr. LARRANAGA. That is correct, yes.

Senator BINGAMAN. Okay. All right. Why don't we——

Senator DOMENICI. I have one.

Senator BINGAMAN. Yes, go ahead.

Senator DOMENICI. I know it's in the record; but, from the statement that I heard, I thought the City Commission had adopted something different than this. And I've just shown it to you, Steve, and I guess it's true.

The resolution says the City "should not obtain additional storage for its water at Abiquiu in the absence of a clear economic justification and a determination that the benefits of such storage to the City outweigh any adverse effects," and then it asks the Public Works Department to investigate alternatives for storage of the City's annual allotment of San Juan-Chama water. "These alternatives shall include, but are not limited to, aquifer recharge, selling of water for industrial, agriculture, and municipal uses." That is the resolution that we've been talking about, as far as the results go.

Mr. GALLEGOS. As far as the results go. I think that is important, also, and I guess it will be in the record in the other statements. We do give a lot of history and a lot of explaining as to why we came to that resolution.

Senator DOMENICI. Well, Mr. Chairman, before we set this panel aside and proceed, I would like the citizens who are here and those who are going to help formulate this decision to get the 1-minute benefit of where my head is. I hope nobody thinks I'm against this river becoming Wild and Scenic. I think it should be.

I am very concerned—and I'll just be absolutely frank with you—about what happens in 10, 20, or 30 years. Water is a most valuable commodity, one over which we have little control in the State of New Mexico. Let us assume Albuquerque and other downstream cities need to obtain more storage. Should they have to confront two hurdles instead of one?

They have, at this point, one hurdle—get Congress to authorize more storage here, and perhaps alter the cost of the storage.

If we pass Wild and Scenic down to the joint-managed area, we will have two hurdles. They are distinct and different, in my opinion after 15 years in the Congress.

The first will become a matter of consequence between the State of New Mexico, her citizens, and Congress.

The second, if it is Wild and Scenic all the way down, will become an issue with a third player, and that is the wild and scenic enthusiasts of America. [Applause.]

There is no question that that will make it much more difficult for New Mexico and New Mexico's interests, even if we have been able to maintain for 30 years Wild and Scenic use of that entire river.

And I think some of you might think that is the best. We may end up in 3 or 4 weeks or 6 months saying that is the very best. But that is the issue. We'll have to decide that kind of situation for New Mexico's future. Water isn't all in little compartments. I must

believe that a multimillion-dollar contract to buy water from another state, and bring it here, is valuable. We ought to maximize it in terms of its potential in the future. That's the issue that is bothering me.

Thank you, Mr. Chairman. [Applause.]

Senator BINGAMAN. We'll take a ten-minute break before we start the next panel.

[A recess was taken.]

Senator BINGAMAN. Let's go ahead and get started here. If any of you need to talk, just step out in the lobby, and the rest of us will go on with this hearing.

All right. Our third panel has Bill Saad of the Elephant Butte Irrigation District; Bill McIlhaney of the New Mexico Farm and Livestock Bureau; Fred Berry, a Rio Chama rancher and geological consultant; William Turner, who is a professional hydrologist; and Phil Wallin, who is the Vice-President of the Trust for Public Lands.

Why don't we go ahead and take the testimony in that order? Bill, if you would go ahead, we'd appreciate it.

As you all are probably aware, we are scheduled to finish at noon. We're not going to get that done. But, what we would like to try very hard to do—in fact, we have to do—is to finish by 1:00. So, I'll ask this panel, once again, to try to return to our previous ground rule of trying to summarize your testimony in about five minutes, if possible. And then we've got one other panel, and then we've got a whole large group of official witnesses which we may or may not have time to hear from orally.

We appreciate that vote of confidence.

Okay. Bill, why don't you go ahead?

STATEMENT OF BILL SAAD, ELEPHANT BUTTE IRRIGATION DISTRICT

Mr. SAAD. Thank you, Mr. Chairman.

I am here in behalf of the Elephant Butte Irrigation District. We are the irrigation and farming interest which exists primarily in Dona Ana County, which is the southern part of our state. We have over 7,000 constituents within our irrigation district, each one representing a husband, wife, aunt, and 2.3 to 3.1 children.

[General laughter.]

Mr. SAAD. We represent approximately 40,000 of the 55,000 people in Dona Ana County.

I am here as a spokesman for the Board of Directors of the Elephant Butte Irrigation District and would like to stress their views and opinions.

Our district has been a very successful irrigation district. We are the first to have been able to pay off our debt to the Federal government—the Bureau of Reclamation, Department of the Interior. We also have the most successful irrigation land in all of New Mexico and Texas. We can only say this because we are very fortunate. We have good farmland, we have good farmers, we have good support services at New Mexico State University, and we have good water.

Our district is successful because we are the one industry within Dona Ana County. You may say there is New Mexico State University, and there is White Sands Missile Range. We are the industry in Dona Ana County.

There are Federal agencies, and there are State agencies; however, this industry is supporting the position of good water and not removing any options by having this water leave our state, never to return.

We have gone on record. We have opposed the City of El Paso. We oppose actions of any agencies within or without the state of New Mexico that may take advantage of our water position.

We never remove an option. If at some point in time, these waters can be utilized to the fullest for the state of New Mexico, why not retain these waters within the state in one form or the other?

We could—and it is our request—that the capacities at Abiquiu, although this is not the single large issue at this time, if these capacities were increased, if the rate per year on rentals were put into an area where dirt-ditch farmers just like ourselves could use that water, these waters could be used in the southern part of the state of New Mexico. We are requesting that this option not be removed.

And in behalf of Dona Ana County and Elephant Butte Irrigation District, we thank you for permitting us to be here.

Senator BINGAMAN. Thank you very much.

Bill McIlhaney.

STATEMENT OF WILLIAM McILHANEY, PRESIDENT, NEW MEXICO FARM AND LIVESTOCK BUREAU

Mr. MCILHANEY. Thank you, Mr. Chairman, and members of the Committee.

My name is William McIlhaney, and I am President of the New Mexico Farm and Livestock Bureau, the state's largest agricultural organization. On behalf of the 10,500 farm, ranch and rural families represented by the Farm Bureau, I would like to thank you for this opportunity to present our views on this very important issue.

Mr. Chairman, our productive agricultural industry is the leading user of water in New Mexico, and we obviously have a great interest and concern with its management for the long term. Our farmers and ranchers understand the importance of water in this arid region, and memories of dry years are vivid for those who depend on this precious resource to provide the life-blood of this state's dynamic agricultural resource. New Mexico farmers not only feed their families and their neighbors, but each farmer produces that much and enough to feed 80 others around the world.

We have been blessed with abundant rainfall and runoff over the last several years, but everyone knows this situation will not last in our area of the Southwest.

Members of the New Mexico Farm and Livestock Bureau, therefore, have many vital concerns with proposed legislation to designate a portion of the Rio Chama Wild and Scenic.

Of primary concern is the potential loss of storage capacity at Abiquiu Reservoir that will be needed in the future. The Farm

Bureau does not feel that it is prudent public policy to lock up a section of the river forever, precluding any future use of this resource. Building another dam on the system is also not a solution to the problem.

Those of us who have made farming and ranching our lives' work understand the importance of protecting our river resources and balancing agricultural uses with conservation and recreation purposes. The key word is, of course, "balance."

Because of the lack of balance in this proposed designation, the New Mexico Farm and Livestock Bureau must oppose this legislation, Senate Bill 850 and its partner in the House.

In addition, we have a particular concern with the designation of that portion of the river that lies below 6,353 feet. No one knows what our future storage needs will be, but everyone knows we live in the most arid region in the nation. Therefore, the elimination of this four miles of river as a potential storage area is unwise and unchangeable if this sweeping legislation is passed.

Those of us in agriculture have had more than enough experience with attempts to lock up our land and water. We know the consequences of foreclosing all options as we deal daily with trying to make a living in a state where the government controls more than a third of the land. The same is true throughout the West. If portions of the Rio Chama are declared Wild and Scenic, it is our contention that this decision may be irreversible. New Mexico's future is too important to lock behind a hasty decision.

In conclusion, we have heard it said that this bill has the strong support of our Congressional delegation; however, if you read the text of Senator Domenici's statement in the Congressional Record, it is clear that our senior lawmaker has the same concerns as our organization. We are confident that many New Mexicans share this view.

New Mexico farmers and ranchers understand the power of water—its natural power, its life-giving strength, and its political potential. We feel it is short-sighted to limit the potential of the state of New Mexico by enacting this sweeping legislation.

We are always interested in alternate suggestions and ideas as a way of balancing the use of our natural resources; however, we urge the New Mexico Congressional delegation to reconsider this bill in its present form, and to weigh the long-term interests of the state against short-sighted political maneuvering by small special-interest groups.

Thank you, Mr. Chairman, for this opportunity to provide this testimony. [Applause.]

Senator BINGAMAN. Thank you very much, Bill. We appreciate it.

Fred Berry, who is a rancher in the Rio Chama.

We're glad to have you here, Fred.

STATEMENT OF FRED BERRY, RIO CHAMA RANCHER AND GEOLOGIC CONSULTANT

Mr. BERRY. Yes. My name is Fred Berry. My wife and I own a ranch upstream from Abiquiu Lake near the Monastery. We're the only ranch up there.

I am a consulting geologist. I am a former professor at the University of California, Berkeley, in geology and geophysics, where I was for 15 years.

The question exists and I'm here to talk about the geologic safety of Abiquiu Dam. Is Abiquiu Dam safe for the expected geologic risks? That is a question that, in my opinion, is not answered. It is not that I know the answer, and I don't believe anyone else now knows the answer.

The Corps of Engineers a year and a half ago retained the consulting firm of Tierra Engineering to prepare a revised assessment of the geologic risks. Senator Domenici asked the group at Los Alamos and myself to serve as an informal review group of that report and its findings, which we did.

We met with the Corps and its consultants about a year ago almost to this date in Albuquerque. We had a frank and open exchange—a very friendly exchange. Both the Los Alamos group and myself submitted written reports to Senator Domenici.

The report to the Corps by its consultants was reconnaissance in nature. It was preliminary. It was not a definitive report. As a former professor, I would say it was not a definitive report and should not be taken as such. It in no way was a safety study. By hearsay, I have been told that it was referred to as such this morning. I specifically asked one of the authors at that meeting a year ago, and in no way did they intend that to be a safety study of the dam.

The main conclusion of that report to the Corps is that it upgraded the estimate of the maximum possible earthquake that might be expressed in or adjacent to Abiquiu Dam to a magnitude of 7. I concur with that estimate, as does Los Alamos. This is a reasonable estimate for the Rio Grande system today, given the state of our general knowledge, which begins to suggest that we do have infrequent, but very large earthquakes with long periodicity.

Now, the acceptance of a magnitude 7 earthquake event answers lots of questions. Practically, it eliminates much of the geologic argument. We no longer need to argue if any site is a potential high-risk site, because with a magnitude 7, we might just as well be talking about magnitude 8 or 8.5 or anything, because local factors will control the amount of stress on a given structure once one gets to earthquake events of that size.

Thus, with acceptance at the Abiquiu Dam site of a magnitude 7, one has accepted the possibility of a major seismic risk. So, the immediate question is, will the dam stand up to it?

That was the subject of nearly all of our discussions at our meeting a year ago between the Corps, Los Alamos and myself, and it remains a question today. It seemed to us—and I refer to Los Alamos and myself, the geologists at the meeting—that immediately what is called into demand is a careful study of the engineering safety of the dam in the event of a magnitude of 7 event. That seems logical and essential. Such a study should be subject to independent review by imminent peers, selected by such a group as the National Academy or some such independent group. No such study has been made.

The Corps says in its meeting that I attended in Espanola this spring that it will include a section on dam stability and safety in

its overall feasibility study that was the original focus of this whole problem—that is, of raising the permanent pool.

Now, the Corps genuinely believes that the dam is safe, and that certainly came out in our meeting a year ago, essentially, under any seismic stress; but, their arguments are one of faith and belief. [General laughter.]

I'm not being silly. I'm being absolutely serious. That is that earth-filled dams, properly built, don't fail. And I must say, for the record, the record of earth-filled dams is in general quite good. There is no question, and I don't question that at all.

Neither the Los Alamos group or myself, however, are not engineers, and we're not prepared or able to make this assessment if the dam is safe. It bothers both of us that a careful study has not been made and was not comtemplated—and I gather still is not comtemplated—which includes quantification of the details of the particular situation at Abiquiu. That is, in 1987, there are a lot of facilities and approaches that are available to us that we can do a lot better than simply cite the history of other dams. We can try to look a lot at how a particular site will respond in terms of a failure analysis.

I believe that such a study is the next and only logical step, and that the study should be made. Now, the Corps says in its recent public publications that it won't make this serious safety study now because it costs too much money, but it will be done if a permanent pool level is ever raised. Now, the logic of this argument really escapes me. [General laughter.]

It seems to me to be some sort of Russian roulette argument. That is, it is either black or white. If there is a risk that justifies at any point such a serious study, then it should be evaluated now. Or if there is insufficient risk to justify such a study, then we can just forget about it.

There is enough water in the dam at the present time, and particularly into the increased storage of the flood emergencies, that failure at the present time that I think we're dealing with marginal increments. Failure at the present time would cause enormous damage, and failure if the pool level was raised might cause more damage; but, it seems to me there is a minor percentage gain or difference.

The question is where to start. I'm not an engineer. If I were, I would welcome this question. I don't understand why the question isn't being welcomed.

I would start small. I would not start with the ultimate scientific failure analysis, but I would do the very best job I could do to review the data at the present time and to review the specific situation and to make the most competent engineering evaluation I could within a reasonable budget approach.

I would submit that to an independent peer review. I think the people would probably do it for nothing. We did it for the Senator for nothing, and we're happy to do that.

I would give those results to all of the public, including the geologic community.

Maybe such a first round would answer everything. Maybe it won't answer anything. But, most things we find in the life that

are scientific-political are ongoing evaluations. We must make collectively our best judgments, and this subject must be addressed.

I heard someone said at one of the public meetings that this whole question of seismic risk is a red herring, because geologists never agree on anything. That's true. [General laughter.]

They seldom do. But, I've talked with lots of geologists on this subject, and I haven't met one that doesn't have some sense of real concern regarding Abiquiu Dam except for the geologists who work for the Corps and the consultants that were retained by the Corps. [General laughter.]

We are not engineers. That is the fact that concerns every geologist—that this dam is built right on the west edge of the Rio Grande river system and the most prominently displayed faults of that system.

We're not engineers. We're geologists. But, we've gained some humility. We're impressed that the Earth and man's efforts are not quite as predictable as engineers often would wish. It has been our lifelong interaction with engineers—unanticipated events do happen. An example is the rock slide that occurred below Abiquiu Dam last September. That was not anticipated in Tierra's engineering reports of May of the previous year—a very detailed report and not anticipated at all.

The engineering stability of the dam of a magnitude 7 earthquake must be addressed. It is a process that is an ongoing evaluation, and I believe that it should start now.

Thank you very much.

Senator BINGAMAN. Thank you very much.

Let me just reiterate. To the extent we can, let's try to keep the testimony to five minutes, so that we can get through as many of the witnesses as possible.

Let me now call on William Turner, who is a professional hydrologist.

STATEMENT OF DR. WILLIAM M. TURNER, PROFESSIONAL HYDROLOGIST

Dr. TURNER. Thank you, Mr. Chairman. I'll try to keep my remarks brief, and if you have any questions subsequently, I will try to expand upon them. I have omitted some of my prepared testimony, because it's been duplicitous.

It is with a great deal of appreciation, Mr. Chairman, that I appear before this Senate Committee today to testify on the merits of surface water storage within New Mexico as a means of providing for the long-term future domestic needs for the people of New Mexico.

At the outset, I would like to emphasize that I'm appearing here today as a private citizen and that I do not represent any special-interest group which may have an interest in the outcome of your deliberations. I would like to particularly stress that I do not represent the Jicarilla Apache Tribe, the Sierra Club, the City of Albuquerque, or any other party. Finally, I would like you to know that although I am a consulting hydrologist, no party has paid for my testimony I am about to give, and I am here as a public service to offer my views.

In 1979, the City of Albuquerque entered into a contract with the U.S. Bureau of Reclamation to store its 48,200 acre-feet per year of San Juan-Chama water in Elephant Butte Reservoir. When the water was eventually needed, it could be recovered by complex bookkeeping transactions, whereby Albuquerque's water stored in Elephant Butte was to be released to the Elephant Butte Irrigation District, and the water falling past Albuquerque would be captured to offset the effects of groundwater diversions in Albuquerque aquifer.

The Jicarilla Tribe saw this action would cause an unconscionable waste of precious water, and filed suit to void and prevent that action. Having condoned the plan, the State Engineer's Office and the U.S. Bureau of Reclamation intervened in that suit.

I was the expert witness retained by the Jicarilla Apache Tribe to calculate the amount of waste under various scenarios of transport and channel loss and times of transport of the water from the acetate tunnel through the dam systems in the northern part of the state to Elephant Butte and the subsequent evaporation from water surface as a surface in large part due to the storage of that water.

At trial, during deposition and discovery, I was very concerned to learn that neither the City of Albuquerque, the State Engineer, nor the Bureau of Reclamation had made any calculations whatsoever of their own regarding the important issue of waste. My work showed that from 93 to 97 percent of San Juan-Chama water belonging to the City of Albuquerque and paid for by the taxpayers of the City of Albuquerque which the City planned to store behind Elephant Butte Dam would be totally lost to evaporation.

I just ran a brief calculation on that. The total amount of water which would have been run down the stream system was 1,120,000 acre-feet. In that period of time, 93 percent of that represents 1,049,061 acre-feet of water. At $20 an acre-foot, that is some $20 million worth of taxpayers' money wasted.

My testimony was unrefuted by the U.S. Bureau of Reclamation, the New Mexico State Engineer, or the City of Albuquerque and was accepted by the trial court as true fact.

Senator DOMENICI. Sure.

Dr. TURNER. In his decision, which was upheld by the 10th Circuit Court of Appeals, Judge Payne found that the evaporative waste of over 1 million acre-feet of water was so massive that the slight increase in electric-power-generation revenues and the slight increase in fishing were not beneficial uses in comparison.

In 1981, the state of New Mexico prevailed upon Congress to authorize a conservation pool for storage, and I might stand corrected on this, Senator Bingaman, but I believe it was in both Elephant Butte and in Abiquiu. The New Mexico State Engineer testified in hearings in support of that legislation that the water would be stored for 43 years before it would be needed at all. Public Law 97-140 was passed, which allowed storage of unused water in Abiquiu and Elephant Butte Reservoirs.

I believe the view in Judge Payne's decision that, despite the legislation, the legislation is insufficient to bring the City of Albuquerque within a decision of the court because of the inordinant waste of water.

Public Law 97-140 authorized 200,000 acre-feet of storage in the Abiquiu Reservoir. By early 1986, Albuquerque had stored 170,900 acre-feet behind Abiquiu. As a matter of fact, gentlemen, last year, I believe some of that water was spilled to provide the empty space necessary to maintain the flood-control pool. Other entities have stored 30,000 acre-feet of San Juan-Chama water.

Now, I'm not here to carry out the detailed calculations on evaporative water loss from Abiquiu, but the relative 1984 pan evaporation at Abiquiu and Elephant Butte suggests that if 93 percent of the stored water is lost at Elephant Butte, 74 percent of the water stored at Abiquiu would be lost to evaporation, all other things being equal. They are not all equal, but this also includes losses for 43 years to offset the annual pool evaporation of that conservation pool.

It is not the purpose of this statement to carry out the same detailed analyses that I did for the City's plan to store water at Elephant Butte, but to suggest a significant portion of any water stored at Abiquiu would be lost—wasted to evaporation before it could be used—because stored water is only used after Albuquerque has completely consumed its 48,200 acre-foot allocation. That is, if we place water in the reservoir and at such time as we require the 48,200 acre-feet, we begin drawing down on that. And after we consume that annually to offset the affects of groundwater diversion in the Albuquerque area, at that point in time, we will be drawing down on the water in the conservation pool—43 years from now.

I'll just conclude these remarks, gentlemen, by saying that it's my belief that the water management policies that have been espoused here today represent, in my mind, completely out-of-date water-management methods. We're not the Taens and the Samarians. The plight of farmers across the pages of history 6,000 years ago pursued far better water-management policies and water-conservation policies than my friends here espoused today. I think we've gone downhill.

And I'll just summarize or finish my comments by stating that, in the olden days, 6,000 years ago, it was their policy to store surface water beneath the ground, because they lived in areas far more arid than we did. And it is completely feasible to store excess water that we have a right to and we pay for now beneath the sands of Albuquerque, Santa Fe, the Elephant Butte Irrigation District and elsewhere through soundly managed groundwater recharge schemes. This is very easily accomplished at a relatively low cost to the taxpayers and flow by gravity and low operation and maintenance costs, and I think they should really be pursued in some detail.

I might mention that this blue document, which I think is going to be made a part of the record, entitled, "Water Resource Management Strategy," prepared by the City of Albuquerque, is their very first attempt since I've been in Albuquerque and talked about these issues, which is some 17 years, to address the issues of long-term water-management policy for the City, and I commend them on the effort. The contracts to start this should begin in September.

One final comment, the City of Albuquerque is presently drawing on its groundwater supplies. This report by the U.S. Geological

Survey entitled—well, I'll just call it by "Water Resource Investigation Report, 86–4194—"indicates that in 1986, the City of Albuquerque pumped 25 percent of its total water requirements from the storage within the ground beneath the City of Albuquerque. Last year also, it's notable that, for the first time, the City of Albuquerque exceeded 100,000 acre-feet in total water diversion.

Thank you Mr. Chairman.

[The prepared statement of Dr. Turner follows:]

STATEMENT OF

DR. WILLIAM M. TURNER

Mr. Chairman, it is with a great deal of appreciation that I appear before your subcommittee today to testify on the merits of surface water storage within New Mexico as a means of providing for the long term future domestic needs of the People of New Mexico.

At the outset, I would like to emphasize that I am appearing here today as a private citizen and that I do not represent any special interest group which may have an interest in the outcome of your deliberations. I would like to particularly stress that I do not represent the Jicarilla Apache Tribe, the Sierra Club or the City of Albuquerque. Finally, I would like you to know that though I am a consulting hydrologist that no party has paid for the testimony I am about to give and that I am here as a public service to offer my views.

Mr. Chairman, as you can see from my resume, which you have before you, I have been involved in water resources, development and management for about 25 years and that my experience is worldwide. For the past 17 years, I have been a consulting hydrologist here in New Mexico.

As early as 1971, I walked the halls of City, State and Federal Government to urge that Albuquerque and the State of New Mexico, located in the arid American Southwest, required long range policies of water development, use, conservation and management. I pointed out that the Albuquerque ground water supply would be mined as the population of Albuquerque grew and that water levels would drop rapidly in the City wells. I was met by nodding heads and City policies which ignored what I believe was sound advice.

In the early 1980's, the Albuquerque Water Department became alarmed at the excessive drop in water level within many City wells and commissioned a study to evaluate the problem. The problem would seem to be that the ground water beneath some areas is being withdrawn more rapidly than it is being replenished. Dropping water levels mean deeper wells and higher pumping costs which must be shouldered by the residents of Albuquerque. The situation in Santa Fe is not much different.

A recently released report by the U.S. Geological Survey suggests that Albuquerque is now beginning to mine its ground water resources.

I am pleased to say that within, at least the past year, the City of Albuquerque has begun to think about these issues and will, in the near future, let contracts for the development of an informational data base, water resource budget studies and the examination of water use, conservation and water management policies.

In 1979, Albuquerque entered into a contract with the U.S. Bureau of Reclamation to store its 48200 acre feet per year of San Juan Chama water in Elephant Butte Reservoir. When the water was eventually needed, it was to be recovered by means of complex bookkeeping transactions whereby the Albuquerque water was released to the Elephant Butte Irrigation District and their water would be used to offsett diversions made in the Albuquerque area. The Jicarilla Tribe saw this action would cause an unconscionable waste of precious water from the arid southwest and filed suit to void prevent the action. Having condoned the plan, the State Engineer and the U.S. Bureau of Reclamation intervened in the suit.

I was the expert witness retained by the Jicarilla Apache Tribe to calculate the amount of waste under various scenarios proposed by the City. I was disturbed

to learn that neither the City, the State Engineer nor the Bureau of Reclamation had made any calculations of their own regarding the important issue of waste. My work showed that from 93 and 97 percent of San Juan Chama Water belonging to the City of Albuquerque which the City planned to store behind Elephant Butte Dam would be lost to evaporation before it could be reclaimed by the City in the early part of the 21st century. My testimony was unrefuted by the U.S. Bureau of Reclamation, the New Mexico State Engineer or the City of Albuquerque and was accepted by the trial court as true fact.

In his decision, which was upheld by the 10th Circuit Court of Appeals, Judge Payne found that the evaporative waste of over one million acre feet of water was so massive that the slight increase in electric power generation and fishing were not beneficial uses in comparison.

In 1981, the State of New Mexico prevailed upon Congress to authorize a pool within Elephant Butte for the storage of the Albuquerque water anyway. The New Mexico State Engineer testifie that the water would be stored for 43 years before it would be needed at all. P.L. 97-140 was passed which allowed storage of unused water in Abiquiu and Elephant Butte. I believe that the legislation is insufficient to bring the City within the decision of the Court because of the inordinate waste of the water.

P.L. 97-140 authorized 200000 acre feet of storage in the Abiquiu reservoir as well. By early 1986, Albuquerque had stored 170900 acre feet behind Abiquiu dam. Other entities had stored 30,000 acre feet of water.

The relative 1984 pan evaporation at the two sites suggest that if 93 percent of the stored water is lost at Elephant Butte, 74 percent of the water could be

lost at Abiquiu all other things being equal. This includes annual loses for 47 years to offset the annual pool evaporation.

It is not the purpose of this statement to carry out the same detailed analyses that I did for the City's plan to store water in Elephant Butte but to suggest that a significant portion of any water stored in Abiquiu would be lost; wasted to evaporation before it could be used because the stored water is only used after the Albuquerque has used its 48200 acre foot annual allocation.

There is at least one better way to store the excess San Juan Chama water being presently diverted into the Rio Grande Basin.

The most widely used of modern methods is ground water recharge whereby surface water is caused to percolate into the subsurface thereby escaping the suns rays. Ground water recharge has the following benefits:

1. It will result in significant conservation of our water resources because very little loss of water from evaporation will occur. A recent New Mexico Statute requires conservation of water to the greatest extent possible.

2. Recharge will cause rapidly dropping water levels in municipal wells to slow, stop or recover resulting in lower pumping costs and a reduced capital outlay program to supplement wells whose capacity has already decreased.

3. Greatly reduced operating and maintenance costs as the recharge system should operate by gravity flow.

4. The need for a higher dam crest at Abiquiu will be unnecessary and potential problems of dam safety reduced.

5. Ground water recharge in the Tijeras arroyo area may cause nitrate-contaminated ground water in the south valley to be flushed from the ground water system.

6. Ground water recharge may be implemented at specific locations of high usage.

7. The mechanism will be in place to implement conservation of water stored for the Middle Rio Grande Conservancy District as acreage in the district goes out of production or different irrigation methods are implemented which require well water.

When New Mexico eventually uses more water than is replenished by rainfall annually, additional water can be obtained through water conservation and reuse measures. These may include:

1. One gallon flush toilets.

2. Southwestern landscaping.

3. Recharge of storm water runoff.

4. Exchange of treated waste water to irrigators for fresh river water.

5. Recharge of waste water treatment plant effluent.

6. Adjustment of rates to place the burden of luxury uses directly on those who benefit from the use.

7. Adjustment of rates to penalize high water consumption.

8. Conversion from traditional flood irrigation to more efficient drip irrigation.

9. Storage of as much water currently stored in surface reservoirs as possible within the ground through recharge projects as for example the 20,900 acre feet per year of San Juan Chama water authorized for the Middle Rio Grande COnservancy District.

To place the proposed 200,000 acre foot storage pool in Lake Abiquiu in perspective, it has been estimated that upwards of 2 billion acre feet of ground water are in storage within the alluvium of the Rio Grande Basin. Proposed Lake Abiquiu storage pool would represent only one hundredth of one percent of the water already stored in the ground. The magnitude of the proposed storage pool is, therefore, de minimus in comparison to the ground water currently in storage in the ground.

I do not believe it is in the best interests of the people of the State of New Mexico to even consider the surface storage of any of the surface waters of the state, not directly used by irrigators where ground water storage is possible. Even in the case of irrigation water, I do not recommend its surface storage where it can be stored underground close to its place of use.

Dams are intended to regulate flow and provide for short term carry over storage and reliable water supply. They are not intended for long term storage of water.

Thank you Mr. Chairman for the opportunity to appear here today. Should you have any questions, I will be happy to try to anwer them.

Senator BINGAMAN. Thank you very much.

The final witness in this panel is Phil Wallin, who is the Vice-President of the Trust for Public Lands.

Phil, we're glad to have you.

STATEMENT OF PHILLIP WALLIN, VICE PRESIDENT, TRUST FOR PUBLIC LANDS

Mr. WALLIN. Thank you, Senator.

I'll skip some of the pleasantries at the beginning of my statement and go to the third full paragraph there.

I want to go to the heart of the matter that's before us, which is designation of the last five miles of the river between the spillway elevation for Abiquiu Dam, elevation 6,353, and the end of the recreational boating section, which is elevation 6,235. This is the segment within the shadow of Abiquiu Dam, which was never intended by Congress to be filled. It has been suggested by various agency officials who have testified that this segment of the Rio Chama should not be protected by Wild and Scenic Designation, lest it remove an option for future water storage.

Allow me to emphasize that protection of the last five miles of the Rio Chama immediately upstream from Abiquiu Reservoir is the heart and soul of this bill. The very reason for the bill and the tremendous support it has received from the public, a few of whom are here today, is the desire to protect that last five miles from further expansion of Abiquiu Reservoir.

I want to make six key points to explain why Wild and Scenic Designation of that last five miles is in the best interests of the state of New Mexico.

Point Number 1: The last five miles is a vital part of the recreational resource of the Rio Chama. The segment from the Monastery down to the Adobe Ruin access point contains what I consider to be the only whitewater in the river. These are not dangerous rapids, but they provide an exciting finale to an otherwise placid float, making the trip much more attractive to passengers on commercial trips. The five-mile stretch is also most of the one-day trip to the Rio Chama, which would be eliminated, for practical purposes, by further filling of Abiquiu Reservoir.

This is a real and present use of the river. It is not remote or speculative, like the storage at Abiquiu that the water agencies describe. There is a good management plan in place; 15 commercial companies have permits for float trips and have invested heavily in their business. State Parks has negotiated an agreement for weekend water releases which could double the boating season in New Mexico, but has yet to implement the program. And I might say, it is a continuing source year after year of frustration that the agencies frankly have not bothered to implement the program. Rafting is a growing small business in Northern New Mexico, and we need to encourage and support it.

Point Number 2: It's wrong to say that Wild and Scenic Designation will eliminate the option for increasing water storage. This bill, may I declare, will not have the effect of removing the Abiquiu Dam. That facility will remain in place. [General laughter.]

If a true compelling need should ever arise so that more storage at Abiquiu was essential to water supply for our cities or farms, I do not doubt for a moment that the Wild and Scenic Designation would be overridden. That is a practical reality which we have experienced at Yosemite Park, Rainbow Bridge National Monument, and elsewhere.

The point of Wild and Scenic protection is that it recognizes values of recreation and wildlife, and places a heavy burden of proof on those who would sacrifice those values. If water agencies wish to expand Abiquiu Reservoir, they would have to come before this Subcommittee of Congress to make the case that there is a compelling need for more storage, there are no better alternatives, and that the value of storage outweighs the value of recreation and wildlife. The Wild and Scenic Designation changes the rules of the game by giving this Subcommittee of the Senate jurisdiction over this river segment. That is entirely appropriate, I submit, in light of the outstanding values of recreation and wildlife that are at stake here.

Point Number 3: There is no foreseeable scenario which would require additional surface water storage at Abiquiu Dam. There is much talk about foreclosing options for the future, but it is all very speculative and very abstract.

If Abiquiu Dam is so vital to our water future or Albuquerque's water future, where are the plans? Where are the studies? Where are the scenarios and the projections? The only relevant study at hand, from the Corps of Engineers, will conclude that there is no economic and no effective demand for water storage. Lots of folks would love to fill up the dam as a convenience but will not pony up the money.

I've done my homework for this hearing and have researched trends in water supply and demand in the Rio Grande Basin, with the help of lots of experts. I attach that paper as Exhibit A to my statement for your consideration.

My general conclusion is that additional surface water storage is simply not a problem in the Rio Grande Basin. Five basic factors underlie that conclusion: Number 1, the San Juan-Chama Project enjoys more than adequate storage capacity. Herron Dam, El Vado Dam, and Abiquiu Dam, with a total capacity of 800,000 acre-feet of water, guarantee future supplies which, at maximum, are 100,000 acre-feet a year. It is simply not a problem; Number 2, the Santa Fe Formation Aquifer, which parallels the Rio Grande, provides a truly immense reservoir, estimated at two to two-and-a-half billion—that's nine zeros, two-and-a-half billion acre-feet—for cities and farms that own water rights in the Rio Grande. I looked back at the literature, and there are continuing statements about how fortunate we are to be blessed with the quality and the capacity of this aquifer; Number 3: Municipalities, such as Albuquerque, have plenty of potential to purchase water rights for future growth from agricultural water users, a process already underway. As the State Engineer mentioned, Albuquerque is in an enviable position for water supply, as compared with any other city in the Southwest; Number 4: Provisions of the Rio Grande Compact appear, to me, at any rate, to impose a barrier to water storage at Abiquiu Dam by the Elephant Butte Irrigation District and their sister district in

Texas; Number 5: The 200,000 acre-feet of Albuquerque water now stored at Abiquiu will very likely be drawn down over the next 40 years, creating unused capacity there.

My fourth overall point: The Wild and Scenic Designation will prevent drowning of the river by non-essential water storage. And this, to me, is the heart of the matter. We're not real concerned that Abiquiu Dam is going to be called upon for water storage for essential needs. Frankly, this just doesn't seem to be in the cards. What we are concerned about, and why we're here today, is the relentless pressure that we see among the water agencies to fill the available capacity at Abiquiu Reservoir. John Cunico of the Corps of Engineers mentioned to me some time back that, in his view, expansion of the reservoir is "inevitable." It is a mind-set.

The City of Albuquerque, with support from the State Engineer, has repeatedly petitioned Senator Domenici to reduce the cost of water storage at Abiquiu, so that Albuquerque can "afford" to warehouse its surplus water there. Los Alamos County is installing hydroturbines at Abiquiu Dam. In my opinion, unless we secure protective designation for the lower Rio Chama, it is only a matter of time until pressure from the water agencies overcomes the cost-recovery requirements of the Corps of Engineers. Mere citizens, like you and I, can only resist such pressure so long.

The last point: There is already 200,000 acre-feet of storage capacity at Abiquiu Dam that is not serving any beneficial use. Albuquerque water stored at Abiquiu is purely a recreational pool, unless you might also want to regard it as an evaporation pool. [General laughter.]

It serves no beneficial use and, according to projections by Albuquerque water resources, would simply be drawn down over time by evaporation as Albuquerque begins to use its full allotment of San Juan-Chama water.

It seems odd to be talking about expanding the reservoir when the authorized capacity for 200,000 acre-feet is not being utilized for any beneficial use. The probability is that, 40 years from now, Abiquiu Reservoir will be empty, unless the City or State should elect to maintain a recreational pool there.

May I also note that the decision to store 200,000 acre-feet at Abiquiu Reservoir foreclosed an option for the river. Those things do happen. Options do get foreclosed, but they're usually against the river rather than for the river.

Point Number 6: Alternatives exist to augment water supply that are much less wasteful than Abiquiu storage. Surface water storage is the old-fashioned answer to water supply. It is also the most wasteful. In 1985, may I point out that reservoir evaporation accounted for 20 percent of New Mexico's total water consumption, compared with only 5.7 percent for combined urban, commercial, and industrial use.

The obvious answer to providing water for the future growth of New Mexico is through increased efficiency of irrigation. A 1987 study for the Bureau of Reclamation noted that a 5-percent increase in efficiency can be easily obtained in the Middle Rio Grande Conservancy District, which is needed to lessen the water-logging of farmland from irrigation, would salvage 70,000 acre-feet

of water—70,000 acre-feet of water, more than the entire current consumptive use by the City of Albuquerque.

A second obvious alternative is to use surplus water for the recharge of the aquifer that parallels the Rio Grande. This aquifer is by far the largest and most efficient reservoir in New Mexico, and is relied upon by cities and irrigators throughout the Rio Grande Basin.

A thorough look at New Mexico's water situation reveals that storage at Abiquiu Dam is the wrong answer to a problem that does not exist. [General laughter and applause.]

Nevertheless, it holds great charm for the water agencies who are accustomed by habit to maximizing surface-water storage wherever possible. In a sense, I regard this hearing as the past arrayed against the future. The past, represented by old-line water managers, regards every river as a potential storage site and water as nothing more than acre-feet. The future considers that rivers are the natural endowment for recreation and tourism in New Mexico, and looks to protect and manage them for the full range of benefits.

Thank you.

[The prepared statement of Mr. Wallin follows:]

STATEMENT

by
Phillip Wallin
Vice President, Trust for Public Land
Director, Watershed Trust Program
Vice President, Rio Chama Preservation Trust
Conservation Chair, Adobe Whitewater Club of New Mexico

on
S.850, to designate a segment of the Rio Chama River
as a component of the National Wild and Scenic Rivers System

before
U.S. Senate, Committee on Energy and Natural Resources,
Subcommittee on Public Lands, National Parks and Forests,
Santa Fe, New Mexico
July 27, 1987

Mr. Vice-Chairman, my sincere thanks to you for convening this Hearing of the Subcommittee. To Senator Bingaman, Senator Domenici, Congressman Richardson and Congressman Lujan, who could not be with us today, my sincere thanks for co-sponsoring the Bill before us today and the companion Bill in the House of Representatives.

There can be little doubt that the Rio Chama deserves to be part of our National Wild and Scenic Rivers system. It is second to none in the nation in scenic beauty and recreational potential. The very existence of upstream dams and the imported San Juan-Chama water supply presents the opportunity to manage river flows to create a major resource for recreation and tourism in northern New Mexico -- an opportunity, I might add, which state and federal agencies in New Mexico are ignoring, to the detriment of our state's economy.

Let me go to the heart of the matter before us: designation of the last five miles of the river, between the spillway elevation for Abiquiu Dam (elevation 6353') and the end of the recreational boating section (elevation 6235'). This is the segment within the shadow of Abiquiu Dam, which was never intended by Congress to be filled. It has been suggested, by agency officials who have testified, that this segment of the Rio Chama should not be protected by Wild and Scenic designation, lest it remove an option for future water storage.

Let me emphasize that protection of the last five miles of the Rio Chama, immediately upstream from Abiquiu

Reservoir, is the heart and soul of this Bill. The very reason for the Bill, and the tremendous support it has received from the public, is the desire to protect that last five miles from further expansion of Abiquiu Reservoir.

I want to make six key points, to explain why Wild and Scenic designation for that last five miles of the Rio Chama is in the best interests of New Mexico.

Point #1: The last five miles is a vital part of the recreational resource on the Rio Chama. The segment from the Monastery down to the Adobe Ruin access point contains the only whitewater on the river. These are not dangerous rapids, but they provide an exciting finale to an otherwise placid float, making the trip much more attractive to passengers on commercial trips. The five-mile stretch is also most of the one-day trip on the Rio Chama, which would be eliminated, for practical purposes, by further filling of Abiquiu Reservoir.

This is a real and present use of the river. It is not remote or speculative, like the storage at Abiquiu that the water agencies describe. There is a good management plan in place, prepared by the BLM and the Forest Service. Fifteen commercial companies have permits for float trips, and have invested heavily. State Parks has negotiated an agreement for weekend water releases which could double the boating season in New Mexico, but has yet to implement the program. Rafting is a growing small business in northern New Mexico, and we need to encourage and support it.

Point #2: It is wrong to say that Wild and Scenic designation will eliminate the option for increased water storage. This Bill will not have the effect of removing Abiquiu Dam. That facility will remain in place. If a true compelling need should ever arise, so that more storage at Abiquiu were essential to water supply for our cities or farms, I do not doubt that the Wild and Scenic designation would be overridden. That is a practical reality which we have experienced at Yosemite National Park, Rainbow Bridge National Monument and elsewhere. The point of Wild and Scenic protection is that it recognizes values of recreation and wildlife, and places a heavy burden of proof on those who would sacrifice those values. If water agencies wish to expand Abiquiu Reservoir, they would have to come before this Subcommittee of Congress to make the case that there is a compelling need for more storage, that there are no better alternatives, and that the value of storage outweighs the value of recreation and wildlife. Wild and Scenic designation changes the rules of the game by giving this Subcommittee of the Senate jurisdiction over this river segment. That is entirely appropriate, in light of the outstanding values of recreation and wildlife that are at stake.

Point #3: There is no foreseeable scenario which would require additional surface water storage at Abiquiu Dam. There is much talk about "foreclosing options for the future," but it is all very speculative and abstract. If Abiquiu Dam is so vital to our water future, where are the

plans? Where are the studies? Where are the scenarios and projections? The only relevant study at hand, from the Corps of Engineers, will conclude that there is no economic demand for more water storage.

I have done my homework for this Hearing, and have researched trends in water supply and demand in the Rio Grande Basin. I attach that paper as Exhibit "A" to my statement, for your consideration. My general conclusion is that additional surface water storage is simply not a problem in the Rio Grande Basin. Five basic factors underly that conclusion: (1) The San Juan-Chama Project enjoys more than adequate storage capacity, at Heron, El Vado and Abiquiu Dams, to guarantee future deliveries. (2) The Santa Fe Formation Aquifer that parallels the Rio Grande provides a truly immense reservoir, estimated at 2 billion acre feet, for cities and farms that own water rights in the Rio Grande. (3) Municipalities such as Albuquerque have plenty of potential to purchase water rights for future growth from agricultural water users, a process already underway. (4) Provisions of the Rio Grande Compact appear to impose a barrier to water storage at Abiquiu Dam by the Elephant Butte Irrigation District. (5) The 200,000 acre feet of Albuquerque water now stored at Abiquiu will very likely be drawn down over the next 40 years, creating unused capacity there.

Point #4: <u>Wild and Scenic designation will prevent drowning of the river by non-essential water storage</u>. This

is the heart of the matter. What we are truly concerned about is not water storage for essential needs. What we are concerned about is the relentless pressure we see, in the water agencies, to fill the available capacity at Abiquiu Reservoir. John Cunico of the Corps of Engineers has explained to me that in his view expansion of the Reservoir is "inevitable." The City of Albuquerque, with support from Steve Reyolds, has repeatedly petitioned Senator Domenici to reduce the cost for water storage at Abiquiu so that Albuquerque can "afford" to warehouse its surplus water there. Los Alamos County is installing hydro turbines at Abiquiu Dam. In my opinion, unless we secure protective designation for the lower Rio Chama, it is only a matter of time until pressure from the water agencies overcomes the cost-recovery requirements of the Corps of Engineers. Mere citizens can only resist such pressure for so long.

Point #5: <u>There is already 200,000 acre feet of storage capacity at Abiquiu Dam that is not serving any beneficial use</u>. The Albuquerque water stored at Abiquiu is purely a recreational pool. It serves no beneficial use, and will simply be drawn down over time, by evaporation, as Albuquerque begins to use its full allotment of San Juan-Chama water. It seems odd to talk about expanding the Reservoir when the authorized capacity of 200,000 acre feet is not being utilized for any beneficial use. The probability is that 40 years from now Abiquiu Reservoir will be empty, unless the City or State should elect to maintain a recreational pool there.

Point #6: Alternatives exist to augment water supply that are much less wasteful than Abiquiu storage. Surface water storage is the old-fashioned answer to water supply. It is also the most wasteful. (In 1985, reservoir evaporation accounted for 20% of New Mexico's total water consumption, compared with only 5.7% for combined urban, commercial and industrial use.)

The obvious answer to providing water for future growth in New Mexico is through increased efficiency of irrigation. A 1987 study for the Bureau of Reclamation showed that a 5% increase in efficiency in the Middle Rio Grande District (needed to lessen the "water-logging" of farmland) would salvage 70,000 acre feet of water, more than the entire current consumptive use by the City of Albuquerque.

A second obvious alternative is to use surplus water for the recharge of the aquifer that parallels the Rio Grande. This aquifer is by far the largest and most efficient reservoir in New Mexico, and is relied upon by cities and irrigators throughout the Rio Grande Basin.

A thorough look at New Mexico's water situation reveals that storage at Abiquiu Dam is the wrong answer to a problem that does not exist. Nevertheless, it holds great charm for water agencies who are accustomed by habit to maximizing surface water storage wherever possible.

In a sense, this Hearing finds the Past arrayed against the Future. The Past, represented by old-line water managers, regards every river as a potential storage site and

water as nothing more than acre feet. The Future considers that rivers are the natural endowment for recreation and tourism in New Mexico, and looks to protect and manage them for the full range of benefits.

The Rio Chama, properly managed and protected, can be a cornerstone for recreation and tourism and quality of life in northern New Mexico. By approving S.850 as introduced, and designating the full free-flowing segment, this Subcommittee can ensure that the Chama will receive the consideration that it deserves.

EXHIBIT "A"

FUTURE WATER STORAGE NEEDS AT ABIQUIU DAM

by Phillip Wallin

SUMMARY

The Abiquiu Reallocation Study by the Corps of Engineers will conclude: no demand for more water storage at Abiquiu Dam.

The question remains: what do long-term trends indicate for future storage at Abiquiu?

Overview of long-term water supply in the Rio Grande Basin:

As population grows, water supply is likely to be reallocated from agriculture to municipal use, by retiring marginal farmland or increasing efficiency of irrigation.

Reallocation is already underway in the Rio Grande Basin, with a sharp decrease in agricultural water use and a modest increase in municipal water use.

A 1987 study shows that a 5% increase in irrigating efficiency by the Middle Rio Grande Conservancy District would salvage 70,000 acre feet, more than Albuquerque's total current consumptive use.

Storage for municipal use:

Municipal use is likely to increase, with Albuquerque the dominant factor.

Albuquerque's future water needs will be met by:
- 18,700 acre feet of vested Rio Grande water rights
- 48,200 acre feet of San Juan-Chama supply (to be fully utilized around 2030)
- supplemental water will come from purchase of Rio Grande water rights from agriculture.

No more storage will be needed for San Juan-Chama water:
- Heron Reservoir (400,000 acre feet) provides a dependable supply that does not fluctuate from year to year.
- Abiquiu and El Vado (400,000 acre feet total) provide adequate regulating reservoirs for San Juan-Chama water users.
- The 200,000 acre foot pool at Abiquiu, now storing surplus Albuquerque water, will be drawn down beginning about 2030, and that capacity will be available for future needs.

No more storage will be needed by municipalities for Rio

Grande water rights:

- The Santa Fe Group Aquifer along the Rio Grande serves as a reservoir from which municipalities pump their Rio Grande water rights.

Water storage for agriculture:

Most water storage (and use) in the Rio Grande Basin is for agriculture. This use is likely to decrease because of:
- declining profits in farming
- conversion of farmland to non-farm use
- purchase and leasing of agricultural water rights by municipalities
- increased efficiency of irrigation.

Elephant Butte Irrigation District has a 4-year storage reserve at Elephant Butte and Caballo
- supplemented by groundwater in the event of drought.
- The Rio Grande Compact prevents EBID water storage at Abiquiu Dam.

Middle Rio Grande Conservancy District will likely consume less water as lands are converted to urban use.
- Recent conversion of El Vado Reservoir to San Juan-Chama storage has freed that storage from Rio Grande Compact restrictions.

TO SUMMARIZE, future need for water storage at Abiquiu Dam will be held down by:

(1) stability of the annual San Juan-Chama water supply for cities

(2) use of the Santa Fe Group Aquifer as a "reservoir" for cities on the Rio Grande

(3) eventual drawdown of the 200,000 acre feet now stored at Abiquiu, and availability of that capacity for future storage needs.

(4) a probable decline in agricultural water use

(5) the Rio Grande Compact barrier against storage at Abiquiu by the Elephant Butte Irrigation District

ANALYSIS

The Albuquerque District of the Army Corps of Engineers is about to complete a study of the need and justification for more conservation storage of water at Abiquiu Dam on the Rio Chama in New Mexico. (At present, the Dam is used only for flood and sediment control, except for storage of 200,000 acre-feet of San Juan-Chama project water, most of which is contract water owned by the City of Albuquerque.)1/

The Corps has indicated that they will conclude that no further permanent water storage is justified at Abiquiu. The fundamental factor in that conclusion is that no municipality, irrigation district or other entity has expressed an interest in paying any cost for storage at Abiquiu (estimated by the Corps at around $20 per acre foot per year).2/

This seems surprising in a semi-arid state. How can there not be a demand for more water storage? Even though the Corps has drawn this conclusion, professional water managers argue that someday there will be a need for more conservation storage at Abiquiu, and we should keep that option open.3/

Of course, there is no way to permanently and irrevocably eliminate the option of storing more water at Abiquiu Dam.4/ Congress will always have the power to respond to a pressing need. Nevertheless, it seems worthwhile to analyze the proposition that New Mexico's Rio

Grande Basin is bound to need more water storage than it has today.

This proposition seems to be founded on the general idea that New Mexico will grow in population, that more people will need more water supply, and that this will require more water storage.

The purpose of this paper is to examine that general idea, with special reference to the Rio Grande Basin in New Mexico. Given long-term trends, what is the likelihood that additional storage capacity will be needed in the Basin to meet water supply needs?

EXISTING WATER STORAGE FACILITIES.

The Rio Grande Basin is home to five major reservoirs with conservation storage (capacity in acre feet):

Facility	Capacity	Beneficial user
Elephant Butte	2,110,000	Rio Grande Reclamation Proj.
Caballo	241,800	Rio Grande Reclamation Proj.
Heron	400,000	San Juan-Chama Project
El Vado	190,000	Middle Rio Grande District
Abiquiu	200,000	San Juan-Chama Project

The first two facilities are on the main stem of the Rio Grande, and are dedicated to the use of two irrigation districts: the Elephant Butte Irrigation District in New Mexico, and the El Paso County Water Improvement District No. 1 in Texas. The last three facilities are on the Rio Chama (though Heron Dam is actually on Willow Creek, a tributary to the Chama). All water in storage (except for pre-1929 dams and San Juan-Chama storage) is subject to restrictions contained in Articles VI-VIII of the Rio Grande Compact.5/ It should be mentioned that El Vado Dam is now being utilized for storage of San Juan-Chama water for various contracting entities; and that San Juan-Chama storage is also authorized at Elephant Butte Dam.6/

It is important to note that in the case of each reservoir there is a specific reason for water storage, gauged to definite beneficial use. In the case of Elephant Butte and Caballo, the reservoirs serve to receive widely varying inflows from snowmelt runoff and provide a dependable average supply to the Rio Grande Reclamation Project. The same is true of El Vado Dam, which provides the Middle Rio

Grande Conservancy District with a water supply to supplement the native flow of the Rio Grande. Heron Dam is a "regulating" reservoir for San Juan-Chama Project water imported via the Azotea Tunnel from the San Juan Basin to the Rio Grande Basin. It also serves to provide a dependable average supply from a stream whose yearly flow might fluctuate widely.

The exception to the rule is Abiquiu Dam. Storage of San Juan-Chama Project water at Abiquiu is not needed to provide a dependable average supply (a function played for the Project by Heron). Nor is it needed because of fluctuating demand. Abiquiu's storage capacity exists because the Project currently produces a surplus supply (which, because of the State Engineer's interpretation of the Colorado River Compact, cannot be leased to the municipal market in El Paso). San Juan-Chama Project water is stored at Abiquiu, not to provide for consumptive use by participants in the Project, but to enable participants (particularly Albuquerque) to take delivery of Project water for which they have contracted. In that sense, it is very different from reservoirs which serve to equalise supply and demand for beneficial use.

In looking at the future "need" for water storage at Abiquiu, this paper will assume that we are not interested in this "warehouse" function of storing surplus water simply because it is available. Rather, we will investigate whether there are foreseeable increases in demand for water in the

Rio Grande Basin which might be well served by reservoir storage capacity. In light of the new federal requirement that the beneficiaries of storage space at federal reservoirs pay for that space, it is only worthwhile to consider a potential use of storage which would generate a needed water supply. As the Corps of Engineers has learned in their recent Abiquiu reallocation study, the mere availability of surplus water does not necessarily provide an incentive to spend money for storage capacity. To justify an investment by a municipality, and even more so for agricultural users, water storage must provide at least the prospect of supply for beneficial use.

.ERVIEW OF WATER SUPPLY

It is ordinarily assumed by the "man in the street" that population growth is bound to require a higher quantity of water supply. In fact, studies in the Southwest have shown that urban growth tends to reallocate water supply from agricultural to municipal use, by bidding up the cost and value of water. (See, for example, the extensive study by Kelso, Martin and Mack, Water Supplies and Economic Growth in an Arid Environment, 1973.) Because municipalities use so little water by comparison with agriculture, very little reallocation of water is needed to support large increases in population.

That process of reallocating water from agricultural to municipal use appears to be occurring already in New Mexico. Data are provided by the "Technical Reports" on New Mexico water use issued by the State Engineer every five years. A comparison of data for 1980 and 1985 shows some interesting trends. In the Rio Grande Basin of New Mexico, the number of acres of cropland to which irrigation water was applied dropped substantially, from 345,690 acres to 293,411 acres, a decrease of 15%.7/ The Technical Report attributed the decline in irrigated acreage to, among other things, "low market prices for crops," a phenomenon which continues today.8/ If 15% of the irrigated cropland in the Rio Grande Basin were to be retired from irrigation, water depletions would be reduced by something like 150,000 acre feet,9/ more than the entire yield of the San Juan-Chama Project.

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Conversely, urban water use has increased (modestly) during that same five-year period. Depletions of surface and ground water for urban use in the Rio Grande Basin rose from 79,160 acre feet to 85,700 acre feet, an increase of 8%.10/

Agricultural water use is bound to vary from year to year, depending on natural river flow and rainfall in the summer and fall. On a long-term basis, however, a declining profitability of farming, combined with land-use pressures from a growing urban population, will take land out of production and reduce the average yearly water depletion for agricultural use. In the Rio Grande Basin, this will apply particularly to land devoted to a marginal crop like alfalfa, when the price of alfalfa is held down by increasing production in the Navajo Irrigation Project in the San Juan Basin.11/

The physical potential for reallocating water supply from agricultural to municipal use was made clear in a 1987 study of "waterlogging" on 27,000 acres of farmland in the Middle Rio Grande Conservancy District, prepared for the Bureau of Reclamation by the Morrison-Knudsen Company. The study found that, "The primary causes of the high water table are deep percolation from excess water applications and operating practices within the [District]. Overirrigation and lack of adequate water removal facilities are two obvious contributors to the waterlogging." The study concluded that a 5% increase in efficiency by District irrigators, which could easily be achieved, could salvage about 70,000 acre

feet of water per year.12/ Looking again at data supplied by the State Engineer's Office (reproduced on the following page), one sees that this amount is more than the entire water use by the City of Albuquerque today (about 56,000 acre feet, after the credit for return flows). This same amount, if added to the City of Albuquerque's current water rights from the Rio Grande and the San Juan-Chama project, would support a quadrupling of water use by Albuquerque (from about 56,000 acre feet today to about 220,000 acre feet).13/

It appears likely that water can be supplied for New Mexico's foreseeable future growth by reallocation from agricultural use to municipal use. Indeed, the data cited above would seem to indicate that the process is already underway. There are institutional problems in the transfer of water rights from one use to another.14/ It seems reasonable to assume, however, that the high prices municipalities are prepared to pay for water (compared to the value of water in agriculture) will overcome those problems.15/

In light of this general outlook for water supply in the Rio Grande Basin, what will be the needs for water storage?

FUTURE STORAGE NEEDS FOR MUNICIPALITIES

This is the area where the concern appears to be greatest that there may someday be a need for greater water storage capacity in the Rio Grande Basin of New Mexico. And yet the concern diminishes when we look at the nature of the supply of municipal water in the Basin.

Albuquerque is by far the largest city in New Mexico's Rio Grande Basin, and serves as a good example for the others.

Like other New Mexico cities on the Rio Grande, Albuquerque has a dual water supply: vested water rights on the Rio Grande (which it utilises by pumping groundwater from the Santa Fe Aquifer); and participation in the San Juan-Chama project. As can be seen from the chart that follows page 10 above (with projections supplied by the State Engineer's Office), Albuquerque's present needs are met entirely by its 18,700 acre feet of vested Rio Grande water rights. It will consume the first drop of its San Juan-Chama project entitlement (48,200 acre feet per year, 46,300 after transportation losses) in about 1995. It will consume its full San Juan-Chama entitlement sometime around 2030. Assuming that Albuquerque diverts, in 2060, about four times the water it diverts today, it will need to have acquired by that time supplemental water rights from the Rio Grande totalling about 55,000 acre-feet per year.16/ As indicated by the 1987 study done for the MRGCD by Morrison-Knudsen, such a supplemental supply could be provided by a 5% increase in irrigating efficiency by the MRGCD.

This appears to be the "water future" for Albuquerque: full use of its San Juan-Chama entitlement; and eventual conversion of modest amounts of agricultural water rights to municipal use. What are the implications of this scenario for water storage?

First, with respect to the San Juan-Chama supply: Heron Dam is the control reservoir for San Juan-Chama water diverted from San Juan River tributaries through Azotea Tunnel into the Rio Grande Basin. Heron has a capacity of 400,000 acre-feet, four times the estimated yield of the San Juan-Chama Project. Particularly in light of the firm supply in the San Juan River Basin, Albuquerque seems to be assured of deliveries under the San Juan-Chama project.

Given this highly dependable supply (unlike fluctuating Rio Grande native flows), Abiquiu Dam does not serve the traditional storage function of equalizing water supply; nor does it in any way provide a source of water supply for future use. The only apparent need for San Juan-Chama storage at Abiquiu is to "warehouse" a limited quantity of surplus water until it is someday needed.17/ Once it is consumed (probably around 2035), the San Juan-Chama pool at Abiquiu would likely be drawn down. At that point, Albuquerque would be utilising its full allotment of San Juan-Chama water, and there would be no need for further San Juan-Chama storage at Abiquiu. A similar analysis applies, on a smaller scale, to other municipalities on the Rio Grande.

If additional storage is required for Albuquerque and

other municipalities in the Basin, it would be on the Rio Grande, for the purpose of utilizing those Rio Grande water rights that municipalities may someday need to supplement their San Juan-Chama supply. And yet nature has provided a vast natural reservoir for that purpose in the form of the Santa Fe Group Aquifer.

The aquifer in the vicinity of Albuquerque was described by Bjorklund and Maxwell in their 1961 report, "Availability of Ground Water in the Albuquerque Area, Bernalillo and Sandoval Counties, New Mexico":

> The valley fill is the principal aquifer in the Albuquerque area and is composed mostly of unconsolidated and loosely consolidated gravel, sand, silt and clay. The valley fill includes two geologic units -- the Santa Fe group (including the bajada deposits where present) and the alluvium. ... The alluvium and the Santa Fe group collectively make up a single aquifer which is referred to as "the ground-water reservoir" or "the underground reservoir" in this report.
>
> The saturated zone in the valley fill has definite natural bounds at each side, at the bottom, and at the top. On the east side the ground-water reservoir is bounded by the hard, relatively impermeable rocks of the upfaulted blocks that form the Sandia and Manzano Mountains. On the west the reservoir is bounded by similar, but less spectacular, upfaulted blocks near the Rio Puerco. The bottom of the reservoir is formed by beds of consolidated rock, probably of Mesozoic age, which were downfaulted to form the depression in which the valley fill was deposited. The water table marks the top of the ground-water reservoir in the valley fill. The ends of the reservoir are open, for the valley fill in the Albuquerque area is only a segment of the ground-water reservoir that extends the length of the Rio Grande.

Albuquerque, for example, utilizes its Rio Grande water rights by pumping from this aquifer, which in turn draws water from the Rio Grande. In effect, the aquifer serves as a substantial reservoir for the City's Rio Grande water

rights. In the event that the Rio Grande should dry up completely in a prolonged drought, the City would continue to pump, drawing on reserves in the aquifer. Since the water rights on the main stem Rio Grande have not been adjudicated by the State Engineer and the courts, and probably will not be in the foreseeable future, there is no basis for denying Albuquerque (or other municipalities) the right to pump water for lack of seniority.

The aquifer at Albuquerque, like any other reservoir, needs to be replenished in order to serve its function as a reservoir. It is possible that the City will utilize surplus water (including San Juan-Chama water) for that purpose. The City Council has instructed the Department of Public Works to investigate that possibility.18/

To sum up the situation with regard to municipal water supply: available storage capacity is not a foreseeable problem in the New Mexico Rio Grande Basin. Supply needs will be met through the San Juan-Chama project and eventual conversion of modest amounts of agricultural water rights. Existing storage capacity at Heron, El Vado and Abiquiu is ample for San Juan-Chama needs, and the Santa Fe Aquifer will serve that function for Rio Grande water rights. The 200,000 acre feet of conservation storage space in Abiquiu is presently occupied by surplus water. Once Albuquerque draws down that surplus, the presently authorized storage capacity will serve foreseeable municipal storage needs.

FUTURE STORAGE NEEDS FOR IRRIGATION.

Historically, the big storage projects have been for irrigation, not for municipalities. Storage reservoirs are useful in allowing users to draw a steady water supply each year from a widely fluctuating runoff, as typically occurs in the West. In New Mexico, in 1985, 65.7% of total water depletion was for irrigated agriculture. Only 5.7% was for combined urban, commercial and industrial use. (Reservoir evaporation accounted for 19.5%, most of it attributable to agriculture.)19/

The principal irrigated areas in the Rio Grande Basin in New Mexico are the Elephant Butte Irrigation District (EBID) and the Middle Rio Grande Conservancy District (MRGCD). (In 1980, these two districts accounted for 96% of total water depletions in irrigated agriculture in the Basin.)20/ It appears unlikely, in the foreseeable future, that other irrigation projects in the Basin can significantly increase the total consumptive use.

EBID is served by Elephant Butte and Caballo Reservoirs, which store about a four-year supply of water for their irrigation customers even if the Rio Grande should go completely dry. (In the event the two reservoirs go dry, EBID farmers are accustomed to pump groundwater for a supplemental supply.) Provisions of the Rio Grande Compact that define "project storage" prevent EBID from storing Rio Grande water for irrigation anywhere other than Elephant Butte and Caballo Reservoirs.21/

Consumptive use by the EBID can be expected to diminish

in the future, through increased efficiency of irrigation and through conversion of marginal farmland to urban uses. (Generally, cities are willing to pay far more for water than it is worth in farming, by a magnitude of ten or more. That being the case, there is a very strong pressure exerted by the market to convert water supply from agricultural use to municipal and industrial use.)

Similar considerations apply to the MRGCD, which is undergoing a significant conversion of land from farming to urban uses in the Albuquerque area. (Irrigated cropland acreage in Bernalillo County has diminished steadily, and by a total of 50%, between 1940 and 1985.)22/ It appears highly unlikely that there will be a growth in consumptive use by the MRGCD that would make the El Vado Reservoir supply inadequate. Indeed, the 1987 report on "waterlogging" of farmland in the District cited above (at note 12) indicates that the District may be forced to curtail irrigation just to maintain the quality of existing cropland. A further consideration is that the recent filling of El Vado with San Juan-Chama project water, rather than Rio Grande water, frees El Vado Reservoir from the requirements in Articles VI-VIII of the Rio Grande Compact that water be held in New Mexico reservoirs to the extent of the New Mexico debt to Texas.

SUMMARY

Abiquiu Dam has a substantial potential for additional conservation storage. The instinctive view would be that potential storage should be used. However, when one looks at the major factors affecting water use in New Mexico's present and future, the overall conclusion appears to be that increased reservoir storage will not be a critical factor.

Fundamentally, New Mexico's future appears to lie in municipal and industrial growth, rather than increased agricultural production. If anything, production of marginal crops which are extremely water intensive (such as alfalfa) is likely to decrease.

Water storage for municipal and industrial growth in the Rio Grande Basin does not appear to present a problem, for three principal reasons. First, the M&I sector consumes so little water by comparison with agriculture. Second, the San Juan-Chama Project supply is extremely dependable and non-fluctuating. There is adequate San Juan-Chama storage already available at Heron, El Vado and Abiquiu to serve any foreseeable use of that particular supply of water. Third, with respect to municipal use of native Rio Grande water (as opposed to imported San Juan-Chama water), the Santa Fe Group Aquifer along the Rio Grande serves as a vast natural reservoir for Rio Grande waters, and allows cities to utilize their Rio Grande water rights regardless of drought.

With respect to Abiquiu Dam in particular, it appears likely that the existing storage pool of 200,000 acre feet will be drawn down in the next 40 years, thus creating available capacity that may or may not be needed in the future.

FOOTNOTES

1/ Authorized by P.L. 97-140 (1981). See Corps of Engineers, Final EIS, Abiquiu Dam and Reservoir - Water Supply Storage, August 1983.

2/ Public meetings conducted by U.S. Army, Corps of Engineers, at Espanola on 3/13/87 and Albuquerque on 3/14/87. Costs are described in a "Fact Sheet, Abiquiu Reservoir Review Survey, July, 1986" distributed by the Corps.

3/ See letter of April 6, 1987 from S.E. Reynolds, State Engineer, to Sen. Pete Domenici.

4/ A bill introduced in Congress on March 26, 1987 (HR 1839 in the House, S850 in the Senate) would designate a portion of the Rio Chama in New Mexico as a "Wild and Scenic River," thus preventing additional conservation storage of water at Abiquiu Dam. Such a designation is not, of course, irrevocable, but could be amended or repealed by Congress in the future.

5/ The cited Articles require that New Mexico hold water in storage to the extent of its accrued debit to Texas (Article VI), deliver such water on demand (Article VIII), and refrain from storing additional water when Elephant Butte and Caballo drop below 400,000 acre feet (Article VII).

6/ See Bureau of Reclamation, Annual Operating Plan - Upper Rio Grande Basin Projects, p. 22. San Juan-Chama Project water storage at Elephant Butte was authorized by PL 97-140 (1981).

7/ See E.F. Sorenson, Water Use by Categories in New Mexico Counties and River Basins and Irrigated Acreage in 1980 (NM State Engineer Technical Report 44), Table 8 at p. 31; and Brian Wilson, Water Use in New Mexico in 1985 (NM State Engineer Technical Report 46), Table 7 at p. 78.

8/ Brian Wilson, op. cit., p. 6.

9/ See Sorenson, op. cit., Table 2 at p. 20. Total water depletions in the Rio Grande Basin in 1980 were 1,041,840 acre feet.

10/ Sorenson, op. cit., Table 2 at p. 20; Wilson, op. cit., Table 4 at p. 53.

11/ Sources of Irrigation Water and Irrigated and Dry Cropland Acreages in New Mexico, by County, 1980-84, NMSU Agricultural Experiment Station, Research Report 571, pp. 2-3.

12/ Morrison-Knudsen Engineers, Inventory and Analysis of High Water Table Areas, Middle Rio Grande Valley, New

Mexico, February 1987, p. v: "An improvement of five percent in system efficiency would salvage up to 70,000 acre-feet annually. The costs associated with attaining this efficiency improvement should be minimal."

13/ Albuquerque's water use for 1985 (est.) is "Diversions" less "Direct Return Flow to Rio Grande," or 55,675 acre-feet. Adding 70,000 acre-feet to 18,700 acre-feet of "Vested Rights" and 46,300 acre-feet of "San Juan-Chama" would permit "Rio Grande Depletions" of 135,000 acre-feet, which would translate (extrapolating from this table) to water use (diversions less return flow) of about 225,000 acre-feet.

14/ See Bonem, Brown, Cummings and Nunn, "Institutional Impediments to Urban Water Management: A Case Study of Albuquerque, NM," Univ. of New Mexico, June 1984.

15/ According to Water Market Update for January 1987: "Although Albuquerque has sufficient water supplies for the next few decades, it maintains a standing offer to buy irrigation rights at about $1,000/af of consumptive use. Many farmers have accepted this offer and are leasing back the water to continue irrigating until such time as Albuquerque asserts its control over the water rights for other purposes." (p. 4)

16/ See the last column of the Table that follows p. 7 above.

17/ Referring to the Table that follows p. 7 above, it would appear that Albuquerque will completely utilize its annual supply of San Juan-Chama water around 2030. Until then, it will be in a surplus situation. Beginning around 2030, it might draw down the surplus stored at Abiquiu or, if it has acquired other water rights to supplement its supply, might maintain that pool at Abiquiu.

18/ Albuquerque City Council, Council Bill No. R-183, Enactment No. 177-1986, adopted 12/15/86 (8-0).

19/ Wilson, op. cit., Table 1 at p. 15.

20/ Sorenson, op. cit., Table 10 at p. 38.

21/ Article I(k): "'Project Storage' is the combined capacity of Elephant Butte Reservoir and all other reservoirs actually available for the storage of usable water below Elephant Butte and above the first diversion to lands of the Rio Grande Project, but not more than a total of 2,638,860 acre feet." Numerous provisions of the Compact are geared to this definition of "project storage."

22/ See NMSU Agricultural Experiment Station, Research Report 571, Table 1 at p. 3; and Wilson, op. cit., Table 6 at p. 70.

EXHIBIT "B"

AUTHORIZATIONS FOR STORAGE AT ABIQUIU DAM, NEW MEXICO

The question has arisen: what is the current authorization for water storage at Abiquiu Dam, for flood control and for San Juan-Chama project storage? This reduces to two interesting questions: (1) what is the amount of authorized flood control at Abiquiu? and (2) is the authorization for storage of San Juan-Chama water in addition to or within the flood control pool?

These questions are interesting because the Abiquiu authorization is extremely unclear. A look at legislative history suggests, however, that (1) there was no clear authorization for Abiquiu Dam, (2) the approval by Appropriations Committees for flood and sediment control at Abiquiu was apparently for 449,000 acre feet, and (3) the San Juan-Chama Project pool was apparently authorized to be stored within the flood control pool.

(1) Authorization for flood and sediment control. Section 4 of the Flood Control Act of 1941 (P.L. 77-288) directed the Secretary of War to prepare a plan for flood control in (among other drainages) "the Rio Grande and Tributaries, New Mexico." That Plan was prepared and presented to Congress in 1948, as House Document No. 243, "Rio Grande and Tributaries, New Mexico." This Plan proposed flood control dams at Chiflo (Rio Grande), Chamita (Rio Chama), and Jemez (Jemez Creek). This Plan, with the exception of Chiflo Dam, was authorized by Congress in Section 203 of Title II of the Flood Control Act of 1948.

(Subsequently, in the Flood Control Act of 1950, Congress authorised completion of that Plan.)

However, at Hearings before the House Committee on Appropriations in 1953 (for FY 1954), a spokesman for the Corps of Engineers stated that "the studies that we have conducted on the Chamita site have brought out the fact that the cheaper solution involved is the modification in the scheme presented in the original survey document [H.D. 243], so as to provide a dam referred to as the Abiquiu, about 25 miles upstream from the Chamita site with a lower dam on the Chamita site." Gen. Chorpening assured the Committee that "we are not far enough along on our planning to know exactly what will be involved. At the present time we are still studying this alternative plan." (Hearings, 302-303.) In the Appropriation for FY 1955, "New Mexico: Chamita Reservoir" was included as a line item for planning. In the Appropriation for FY 1956, funds were allocated for construction as well as planning at Abiquiu, and construction began in 1956.

The Corps states in documents that the Abiquiu alternative "was approved by both the Senate and House Appropriations Committees during the Fiscal Year 1955 appropriation hearings." (Review Survey for Flood Control: Rio Grande and Tributaries, New Mexico, December, 1958.) I have seen no resolution or colloquy to indicate such approval.

At the Hearing on the Public Works Appropriation for FY 1957, just before construction went to bid, the Corps

spokesman explained to the Subcommittee the specifications for Abiquiu Dam. The following discussion occurred: "Sen. Ellender: From a purely operational standpoint, could you limit the storage capacity, as I asked a while ago, to 700,000 acre-feet under all conditions? Gen. Itschner: Yes, sir, we could. We could limit it to 700,000 acre-feet total storage for the 2 dams on the river [Abiquiu and Low Chamita] with the controlled outlet." (Hearing, 1464) A "Justification" was inserted in the record of that Hearing, indicating "Reservoir capacity" for Abiquiu Dam of 562,000 acre-feet.

However, on June 28, 1956, the Senate Committee on Public Works requested by Resolution that the Corps of Engineers review its 1948 Report on "Rio Grande and Tributaries, New Mexico," (H.D. 243) "with a view to determining whether any addition or modification should be made in the recommendations contained therein at this time." The result was the "Review Survey for Flood Control: Rio Grande and Tributaries, New Mexico," which was the basis for Senate Document No. 94, submitted to Congress on April 29, 1960. This Report proposed that Congress modify the Plan for the Rio Grande in the Flood Control Acts of 1948 and 1950, by providing for the construction of Cochiti Dam in lieu of Low Chamita Dam, and by providing for the construction of Galisteo Dam.

The Report described progress on Abiquiu Dam: "The Abiquiu Dam on Rio Chama was placed under construction in 1956 and is scheduled for completion in 1962. ... The initial

controlled reservoir capacity will be 562,000 acre-feet for flood control and sedimentation reserve; however, the controlled storage will be reduced to 449,000 acre-feet when the Low Chamita Dam is completed, in order to limit combined storage to the required flood and sedimentation reserve capacities as specified by the provisions of the authorizing legislation." [Emphasis supplied] Low Chamita Dam was described as having "a capacity of 251,000 acre-feet," which together with the 449,000 of Abiquiu totalled the 700,000 acre-feet to which Senator Ellender had required that total storage capacity be limited on the Rio Chama.

S.D. 94 recommended: "(1) Cochiti Reservoir project on Rio Grande in lieu of the authorized Low Chamita Reservoir project on Rio Chama; (2) Galisteo Reservoir project on Galisteo Creek." In Section 203 of the Flood Control Act of 1960 (PL 86-645), Congress provided that "The project for improvement of the Rio Grande Basin is hereby authorized substantially as recommended by the Chief of Engineers in Senate Document Numbered 94." Thus, Cochiti Dam replaced Low Chamita.

Even though the legislative history of Abiquiu Dam is murky indeed, some conclusions can be ventured. It would appear that there has never been a formal authorization for Abiquiu Dam (unless one considers the Flood Control Act of 1960, enacting S.D. 94, as having authorized Abiquiu after-the-fact). Insofar as the plan for Abiquiu was "approved" by the Appropriations Committees, the flood and sediment control pool would seem to be restricted to 700,000 acre-feet in

combination with Low Chamita Dam (or its successor, Cochiti Dam). S.D. 94, whose recommendations were enacted by the Flood Control Act of 1960, indicates that Abiquiu's share of this total pool is to be 449,000 acre-feet once the other dam is completed.

(2) Designation of the Abiquiu flood pool by the Corps of Engineers. In light of the fact that Congress has consistently assented to the recommendations of the Corps of Engineers in the Middle Rio Grande Project (with the exception of Chiflo Dam), it might be instructive to look at the practice of the Corps of Engineers in operating Abiquiu Dam.

In S.D. 94, the Corps referred to an initial reservoir capacity of "562,000 acre-feet for flood control and sedimentation reserve," to be reduced to 449,000 acre-feet on completion of Low Chamita. However, upon completion of Abiquiu, the Corps designated a flood control pool of 502,000 acre-feet, together with a sediment reserve of 77,000 acre-feet. In the Final EIS by the Corps for San Juan-Chama storage at Abiquiu, in August 1983, the Corps referred to an "authorized 502,000 acre-foot flood storage capacity." The Table on the next page is reproduced from the Corps' Environmental Assessment for the "Abiquiu Dam and Reservoir Dam Safety Assurance Program Modification of Dam and Spillway," September 1985. It indicates "Top of Flood Control Pool" as 565,000 acre feet (including sediment reserve of 63,000 acre-feet). The elevation at "Top of Flood Control Pool" is 6283.5', and the Table indicates that the

Corps has acquired easements and withdrawn National Forest lands up to 6293.5'.

(3) The Effect of PL 97-140, Authorizing 200,000 acre-feet of San Juan-Chama Storage at Abiquiu. The basic question here is: whatever the authorized flood control storage for Abiquiu Dam, did PL 97-140 add 200,00 acre-feet to the total authorization? Or is the 200,000 acre-feet to be stored within the flood control pool?

The pertinent portion of PL 97-140 is reproduced on the following page. Of particular interest is the following provision: "The agreements to thus store San Juan-Chama project water shall not interfere with the authorized purposes of the Abiquiu Dam and Reservoir project..." Does this mean that San Juan-Chama project water shall not diminish the total amount of reservoir space that was previously dedicated to flood control?

Up until March of 1987, the Albuquerque District of the Corps apparently thought so. In the Table reproduced from the Corps' 1985 Environmental Assessment, it can be seen that the Corps considered that the 200,000 acre-feet of San Juan-Chama water were to be stored within the flood and sediment pool of 565,000 acre-feet. In the Final EIS for San Juan-Chama storage in August 1983, the Corps explained that San Juan-Chama water would have to be dumped if flood control threatened to extend beyond the 6283.5' elevation. This "modified operating procedure is necessary to maintain the authorized 502,000 acre-foot flood storage capacity and would involve the evacuation of part or all of the water supply

during those years when more than 302,000 acre-feet of flood control storage were expected." "[PL 97-140] specifies that this [San Juan-Chama] storage shall not interfere with the authorized purposes of Abiquiu Dam and each user of storage space shall pay any increased operation and maintenance costs attributable to their respective storage. Implementation of this legislation will require a change in project operation and is discussed later in this document." "Preservation of the presently designated flood control storage was an absolute requirement in providing for up to 200,000 acre-feet of water supply storage. This requirement was addressed by recommending a change in operating procedures whereby water supply storage would be evacuated to restore flood storage capacity." (Emphasis added.)

Ordinarily, the interpretation of a law by the administering agency is given considerable weight. And, of course, the validity of today's storage of Albuquerque water depends on the validity of the EIS quoted above. However, one might say that the Corps' interpretation of PL 97-140 was simply wrong, and that Congress intended that the 200,000 acre-feet it authorized was in addition to the pre-authorized flood control pool.

The legislative history for the San Juan-Chama portion of PL 97-140 is exceptionally scanty. PL 97-140 had passed the House and come to the floor of the Senate without a mention of the San Juan-Chama project when Senator Domenici offered the San Juan-Chama amendment. His statement is attached hereto. As Senator Domenici stated, "This section

authorizes such storage, when the storage does not interfere with the authorized purposes of the projects, such as flood control. Thus, the storage is to be allowed only if it proved compatible with authorized project purposes."

Senator Domenici also noted that the bill would require Albuquerque to "pay a portion of the operations and maintenance costs required for the storage. This payment, of course, would not involve construction costs."

This last statement, that storers would "of course" not pay construction costs, may be the key to interpreting the phrase "shall not interfere with the authorized purposes of the Abiquiu Dam and Reservoir project." Under Section 301 of the Water Supply Act of 1958, Albuquerque would clearly be obligated to pay, not only O&M for storage at Abiquiu, but also a portion of the construction costs of Abiquiu Dam. If 1/6 of the total space at Abiquiu were to be allocated to storage for Albuquerque, then Albuquerque would be required to reimburse the United States for 1/6 the construction cost of the Dam, updated to current price levels.

This was, "of course," not to be. Two interpretations are possible. Either PL 97-140 was intended to override the provisions of the Water Supply Act of 1958, and give a "special deal" to Albuquerque; or those provisions did not apply because Albuquerque water was to be stored within the flood control pool. The latter interpretation would guarantee that San Juan-Chama storage would "not interfere with the authorized purposes" of Abiquiu Dam. Flood control space would not be reallocated to San Juan-Chama storage, and

therefore Albuquerque would not be charged for a share of construction costs.

The Corps of Engineers appears to have interpreted PL 97-140 so as to avoid a conflict with the Water Supply Act of 1958 and its own Regulations under that Act. That approach certainly seems more reasonable than to assume that Congress intended to override the earlier Act, particularly in the absence of any discussion of that Act. No claim was made that Albuquerque could not afford the price for storage dictated by the Water Supply Act of 1958. Senator Domenici simply noted that, "of course," Albuquerque would not be liable for construction costs.

Conclusions. The legislative history of Abiquiu authorizations is extremely hard to read. It would appear that the Congressional approval for flood control storage extends only to 449,000 acre feet. The Corps of Engineers has held to an interpretation that the authorization was for 565,000 acre feet, flood and sediment control. PL 97-140 authorized storage of 200,000 acre-feet of San Juan-Chama water, but the most reasonable interpretation of that statute is that the storage should be within the authorized flood control pool. This interpretation has been adopted and implemented by the Corps of Engineers in its operation of Abiquiu Dam.

Phillip Wallin's Statement at Abiquiu Reservoir

Review Survey Public Meeting

April 12, 1987

I would like to acknowledge the good work of Fritz Blake who's been the Project Director on this thing but that might be the kiss of death, Fritz, but I wanted to acknowledge the very conscientious work that Fritz has put into this study. He has been in touch with us a lot. We appreciate it. I guess, the overwhelming question in my mind is whether there is end to this study. It keeps coming at us in installments. Study was done in 1981, 200,000 acre-feet of storage was authorized and the study was put on the shelf. Then it was brought out from the shelf again. Another study was done. There weren't any paying customers, so now the conclusion is, at this time, very important three words, no more storage is recommended, but then those of us who enjoy and use the river and who are concerned about Abiquiu Dam are left to wonder wh[illegible]ll the next time come? As soon as someone is willing to pay the price for storage does that mean the study will be recommences. So the thing is kind of a perennial beast. It keeps rising, and one wonders whether there is any end to this study or whether it is a permanent state of affairs that as soon as there is any interest anywhere in the Rio Grande Basin that is willing to pay $20 an acre-foot for water regardless of what people feel in Rio Arriba or regardless of the recreation or environmental or paleontological values of areas along the Rio Chama, it is going to happen. I guess the basic feeling I have, and that is why the coalition of groups and landowners known as the Rio Chama Preservation Trust has begun an initiative to put a lid on the dam, and basically, put an end to the study through designation of the Rio Chama down

to the existing level of usage at Abiquiu Dam as a Wild and Scenic River, protected for the existing uses. I don't see any other way to settle the question, end the controversy and get on with life as it is. We've got a good reservoir, got a good river, got a lot of people still nervous about the safety issue which hasn't really been addressed. But it seems like it would be nice to put a lid on it, dispose of the issue by designating that river Wild and Scenic and get on with things. Now we have been accused of trying to lock up the dam by designating Rio Chama Wild and Scenic River down to the existing flood control pool, and that is exactly our intention, indeed, is to lock up the dam with the understanding that Congress has the key to that lock. And that if these interest groups, water bureaucracies of a three-state area, do eventually come up with a proposal to expand the reservoir, that proposal would have to be approved by the National Parks subcommittees of Congress, as well as the Water Resources Subcommittees which traditionally have been pretty agreeable, Corps of Engineers and Bureau of Reclamation. So that's our goal, is to get a protective designation for the Rio Chama down to the existing reservoir so that if that is to be changed in the future, it would need to run the gauntlet of the Environmental Committee as well as the Water Storage Committee in Congress.

Senator BINGAMAN. Thank you.

Let me start the questions by asking Dr. Turner if you would elaborate a little bit on what you see as preferable alternatives to deal with the water storage. As I see this, it is a very simplistic statement of the situation. Albuquerque water entitlements are fixed by statute and contract today, and that is not changing except as Albuquerque acquires more water through purchase of more water rights through that purchase. Then, the question is, how do they get the actual water which they're entitled to by statute or contract? And that is where we get into the issue of storage.

Now, your testimony is that further additional surface storage in the Abiquiu Reservoir is extremely inefficient as a way to provide for the actual water to be available. Could you elaborate on the better options?

Dr. TURNER. First of all, the surface water system is a finite resource, and its availability is governed by how much the Good Lord gives us. Its distribution is governed by the laws of man—our compacts and so forth.

The way the system works at the present time is, as water is released down the river, the City of Albuquerque extracts—and I'll talk about the City of Albuquerque, but it's the same for Santa Fe and other major cities along the river. No city in this state uses surface water as far as I know as a source of domestic water. Water is extracted by wells from the aquifers, which eventually cause a draw-down in the flow of the river. The ground water systems and surface water systems are hydrologically connected. So, in order to maintain our deliveries to downstream users, it's necessary that we offset the impact on the river caused by the pumping water wells. That is done by sending down San Juan-Chama water, for example, or by retiring a currently used water right along the main stem of the Rio Grande or one of the tributaries.

The effect on the river is determined by how far those wells are from the river. The farther from the river, the longer it takes for that effect to be felt to the river. So, even though our diversions last year were in excess of 105,000 acre-feet, 105,000 acre-feet of depletion on the river was not the case. I believe our depletion on the river was only something on the order of 60,000 or 68,000 acre-feet. The remainder of that came from withdrawing water from the storage in the aquifer. Now, where we need that water is in the aquifer from which we draw our water. We don't need that water in the surface reservoirs, which we then shoot past the cities and hope that it will percolate into the ground fast enough to offset our groundwater withdrawal.

Where we need that water is, we need that water recharged through the aquifer which is along the mountain fronts. That is where we get most of our recharge at the present time. Studies by the U.S. Geological Survey and studies that I've done in the Santa Fe area indicate that 300 acre-feet of water is being recharged per mile on the mountain front. So, in the Albuquerque area, that converts to about 30,000 acre-feet of recharge a year. We need more.

We have heard from the City about the City seeing a 20-foot drop in this water in the Albuquerque area. All I can say is, there are some cities where the draw-downs have been significantly greater

than that, which has alarmed the cities and which has eventually given rise to this Water Resource Management Strategy Plan.

We need to take the water from the river, protect it from evaporation by introducing it beneath the land surface, where it escapes the rays of the Sun, and that's done by discharging from wells. 48,200 acre-feet represents approximately 30,000 gallons per minute. That can be sent down in a 36-inch pipeline or a 42-inch pipeline and released into natural arroyos. Small endowments stepwise in Congress, such as Tijeras Arroyo, will allow that water sufficient residence time to infiltrate into the subsurface. The actual infiltration of that water can be guided and directed to points of major use, with the result that the draw-downs in these wells which we now see would slow down, stop or reverse themselves, and the water levels would recover.

These recharge schemes are carried out in many, many places around the world. They are not new. They were carried out 6,000 years ago. It is something that we need to pay more attention to.

I don't know if that answers your question, sir.

Senator BINGAMAN. Well, it helps. [General laughter.]

Let me ask if I understand the present situation. Albuquerque is entitled to a significant amount of water each year. This year, for example, a portion of that goes into storage at Abiquiu and other places, and much of that evaporates. That is your testimony, as I understand it?

Dr. TURNER. Yes, sir, that's correct.

Senator BINGAMAN. Is there a significant additional amount of water that they are entitled to that they are not accepting at this time that could go into aquifers?

Dr. TURNER. The review of the City's water rights scheme basically was declared in 1956 by the State Engineer's Office. At that time, the City of Albuquerque claimed 18,600 acre-feet of declared water rights. That was water the City was using at that time, and they continue to have those. They purchased water rights at the present time, so they now have approximately 20,000 acre-feet, as has been testified today.

That is essentially groundwater, because we take it out of the ground. The 48,200 acre-feet is all of the surface water that the City of Albuquerque is entitled to under current statutes and compacts. That is not to say that there is not additional surface water which could be made available through additional purchases of water rights, through the purchase of additional San Juan-Chama water, by the City of Albuquerque buying water, for example, from Taos—I understand they have a lot of water that has not been used. So, there is other water available from the San Juan-Chama Project which is not currently being used, but which could be made available to major population centers.

Senator BINGAMAN. Well, I'm just wondering, is the 48,000 acre-feet that they now have rights to out of the San Juan-Chama, is that being used by the City of Albuquerque today, or could some of that be going into aquifers?

Dr. TURNER. No, it's not being used. The City doesn't project—and I believe it's the State Engineer's testimony before the Senate committee deliberating on that—he said in Public Law 97-140 that the City's allocation of 48,200 acre-feet—which, by the way, is only

46,300 acre-feet when it gets to Albuquerque, because you have evaporative channel losses—that water would not be required by the City of Albuquerque to offset any diversions until approximately 1995. The first drop of it would only be used in 1995. Well, that's eight years from now. Meanwhile, in that eight-year period, the water that we're storing evaporates.

Senator BINGAMAN. Senator Domenici.

Senator DOMENICI. Let me first be clear with reference to your testimony and your efforts. I have over the years appreciated the work we've done together. We started a year and a half ago on a number of issues with reference to this, and I'm very hopeful we can arrive at a successful conclusion here.

Dr. TURNER. I'm sure we will.

Senator DOMENICI. But, let me make sure that, at least in a very general way, when we talk about the water evaporation and new ways to save water that we might use in the future, we recognize this: It is real neat to talk about recharging the subsurface, and that Albuquerque shouldn't be concerned about trying to store as much as it can or using it for recreation, because there are much more efficient ways to put to use the water that's coming from that huge project. Let me ask, nobody's really doing that yet in the United States, are they?

Mr. WALLIN. Oh, absolutely. There's nothing exotic——

Senator DOMENICI. No. I mean, like Albuquerque, just pumping it underground? I've heard from them that there is no such plan.

Mr. WALLIN. Can I defer to Bill Turner on that subject? He's the expert?

Senator DOMENICI. If there is, why aren't we doing it? [Applause.]

Dr. TURNER. These recharge schemes have been around for a number of years. The City of Los Angeles and now Santa Fe injects all of its wastewater effluent into the ground. It does that to build a barrier against salt water intrusion and to conserve that good-quality groundwater which it does have to prevent it from becoming saline.

I'm not going to be able to give you exact specifics of some of these. In Morocco, for example, the Moroccan government has a long-term policy of constructing what they refer to as infiltration dams along the Walvis where they come down from the Atlas Mountains for the purpose of recharging their aquifers to provide water for agricultural needs.

Senator DOMENICI. I understand that, but I'm just talking about this particular area of the Southwest. Is El Paso doing it? I think maybe they are doing some.

Dr. TURNER. I'm not aware that they are.

Mr. SAAD. They are recharging. The City is recharged.

Senator DOMENICI. El Paso is?

Senator BINGAMAN. You might want to speak into the mike, Bill. I'm afraid the reporter might not be able to pick it up.

Mr. SAAD. Thank you.

The City of El Paso has a recharging site which is on the northeast side of the state where they are recharging the city effluent back into the ground.

Senator DOMENICI. Right.

Mr. SAAD. I think Mr. Turner limited his scope to the state of New Mexico and nobody using surface water. However, the City of El Paso presently uses 24,000 acre-feet of surface water through a treatment and reprocessing plant.

Senator DOMENICI. Well, I was just going to make this comment, with reference to the future storage of water. You are very concerned in your statement, Phil, that we are constantly asked to lower storage costs that were set in the Omnibus Water Act. We've been asked once or twice. But, basically, what you're seeing now—and I'd like your analysis with me—is the fact that that storage is going to be expensive enough to force very, very serious consideration of alternatives. Would you care to make an observation on that?

Mr. WALLIN. My first observation would be that the basic cost-recovery requirement has been there since the Water Supply Act of 1958, it is my understanding. The Act was recently passed with your sponsorship. And as the prime mover, Senator Domenici, as I understand it, it really only dealt with the issue of whether the sunk costs would be augmented by a cost-index factor updating the current price levels or whether only an interest factor could be allowed to the sunk cost. So, that requirement has been around for a long time. It wasn't applied in 1981 when Albuquerque's first 200,000 acre-feet of water was authorized. They are charged something like 12 cents per acre-foot per year.

Senator DOMENICI. But, that wasn't all over the country.

Mr. WALLIN. Right. I guess at the bottom line, I have a healthy respect for the ability of the water lobby to basically get what they want if they focus on it hard enough. Certainly, we see a lot of projects going forward around the country that don't answer any compelling need, but there is a lot of political momentum behind them. And, you know, we can't get rid of that. That's politics. But, I feel that what we can do is require that the recreation and the tourism and the wildlife aspect be a part of that equation.

Now, it isn't in the present system. It is purely a water-resource question—purely a cost-benefit question. If somebody's willing to pay for it, by golly, we'll do it, and then the Corps of Engineers will issue an environmental impact statement, which they poke a button and out comes a paragraph that says, "Well, we're going to lose all this river recreation, but we'll get all this reservoir recreation, so what the heck?"

What we need is Wild and Scenic protection, I feel, that will bring before this Subcommittee where there is a truly compelling need for water storage for people that will override that value of recreation and wildlife. Now, maybe there's a different way to get the equals in the equations, Senator Domenici. I'm sure we're all anxious to find it. The Wild and Scenic is definitely one way to do that.

Senator DOMENICI. I was merely making the point that costs now will be $20, instead of $1 or less, and that should make some entities look for alternatives. That's the whole point of conservation.

Mr. WALLIN. Yes, indeed.

Senator DOMENICI. That is one reason why the City of Albuquerque has not already asked that we raise the authorized level. That

$20 precludes that, because they can't afford that, especially since the water is not immediately being injected into the system.

Mr. WALLIN. Excuse me. I should mention that at the Albuquerque hearing before Steve Gallegos' committee, we were told that the Corps had offered to make that storage available to the City of Albuquerque for something in the range of $6 per acre-foot, which surprised the heck out of me. But, we know that there is inevitably some flexibility when it comes to pricing and water storage. [General laughter.]

Senator DOMENICI. I have no further questions.

Senator BINGAMAN. Congressman Richardson.

Mr. RICHARDSON. Thank you, Mr. Chairman.

Mr. Berry, let me just say that I was very intrigued and well-disposed to not just your testimony, but your common sense, too. And I was a little unclear about the nature of this engineering study that you were suggesting. Not the scope of it, but are you suggesting that this study be parallel to the passage of the bill, or should it precede the bill before we do anything? Is there a way to accommodate such an engineering option in the course of amending the bill? What is the timetable for your study?

Mr. BERRY. That's your choice. It should be done is all I know. I don't know the mechanics, and I don't suggest any mechanics. I do think that it would be my own personal opinion that it would be well if there would be some legislation that would say we can do it.

Mr. RICHARDSON. If we added the study requirement to the bill, you would support the bill?

Mr. BERRY. Yes, of course. I would support that without any question. I think that it should be done, and things have a way of dragging and not being done until they are specifically authorized. I have given some suggestion of the history of that.

Mr. RICHARDSON. And, I must say, very well.

Mr. Wallin, if we put forth all of the objections that have been raised by the various groups to the bill, prior to my coming into this hearing, it was my view that the bill should go unamended. I still think that's the case, although there may be some minor or technical amendments that we might consider that would deal with some of the concerns raised here. I assume you would have no objection—your group—to have regular reporting requirements on the effects that this legislation would have on the water needs of Albuquerque's storage at Abiquiu Dam, et cetera, perhaps on a continuing basis?

Mr. WALLIN. Absolutely, Congressman. Now, we're not set in concrete with any formula of words. For example, there has been a lot of concern that somehow this bill would alter or try to regulate the existing power of the Corps of Engineers to conduct flood control in the Rio Grande Basin, and let me say that is not the case. And if it doesn't appear on the face of the bill, then we ought to change the bill to clarify that this bill was not intended to change the way that the Corps of Engineers operates Abiquiu Dam. We may not agree with the way they operate it, but that is a question for another day and shouldn't be part of this bill, in my view.

So, I guess we're reasonable. We're looking for a bottom line that would protect the river for recreation and tourism in New Mexico's future, and any way that can be achieved is fine with us.

Mr. RICHARDSON. Now, I assume also that the language proposed by Steve Reynolds, which I think is mostly clarifying language dealing with, "Nothing in this Legislation shall be construed as being incompatible with existing state property laws" and then a second suggestion that he has—"Nothing in this Act shall be construed to be incompatible with the operation of Abiquiu Dam for recreation of river for flood and sediment control and beneficial uses of water," with perhaps some very descriptive report language. You would have no objection to that?

Mr. WALLIN. Well, anything that was drafted by our State Engineer, I think I would want to take a long and careful look at. [General laughter.]

Mr. WALLIN. That is in a spirit of good comradeship, Steve. The last sentence has never been clear to me as it appears in the State Scenic and Pastoral Act, "regulation of river flow for beneficial use." Well, does that mean to turn the river into a reservoir for non-beneficial use? I don't know.

Mr. RICHARDSON. Well, perhaps we could work on some report language that made it clear.

Mr. WALLIN. Absolutely. We're happy to participate in wordsmithing.

Mr. RICHARDSON. Now, the gentleman from the City of Albuquerque—who happens to be a constituent of mine, because he lives in Bosque Farms—Gary. I think he left, but he talked to me and suggested——

Senator BINGAMAN. Gary Days is still here.

Mr. RICHARDSON. I guess I'd better be careful, then.

He suggested to me that one alternative might be some sunset language that we might put into the designation status. Thinking it out loud, this may be difficult. In other words, within a period of years, look at what we've done and have a way to evaluate it.

My problem there sometimes means when you evaluate, does that mean after the period of time that we evaluate, does it mean termination? I would probably have some problems with that. But, maybe we could have a mechanism where we can look at this and say, "Well, it needs some changing."

He suggested this, and I wonder if this is something that we might work at.

Mr. WALLIN. I certainly don't like the idea of a sunset—a 30-year sunset or whatever it might be. We don't have a sunset on Yosemite National Park. We are not going to re-evaluate in 30 years whether we still want to protect Yosemite National Park.

Now, the designation for the Yosemite National was overridden for Hetch Hetchi Dam. The Congress and President Roosevelt decided that San Francisco needed that water storage in Yosemite National Park, so they put a dam in there and overrode the national park. But that, to me, is a totally different issue of whether we should have a 30-year life at Yosemite National Park.

No, I don't at all agree that there should be some semi-protection for the Rio Chama. If the thing is worth protecting, in my view, it is worth protecting for all time. Recreation is going to become more pressing as a need for our urban population, not less pressing. And I stress again, that keeps us there for the future. To go in and take chromium out of the Wilderness, that is an option that is open to

us. Taking lithium out of the Wilderness, that is our ultimate reserve for our minerals is our Wilderness and always will be. My advice, and as far as I'm concerned, if a true and compelling need arose for water storage in the Rio Chama, it would happen. It would happen, Bill.

Mr. RICHARDSON. So, it would be a separate act overriding, because it can't be done by Executive Order.

Thank you.

Senator BINGAMAN. Sure.

Senator DOMENICI. Jeff, I wonder if you would give me one minute?

Senator BINGAMAN. Sure.

Senator DOMENICI. I have a 2:00 o'clock appointment, and I have to leave. But, I want to thank you for the hearing.

And let me just suggest to the City of Albuquerque's officials—and I will tell them in writing from the Mayor to the City Council and to whomever it is in that City's hierarchy that is concerned about the future—and to you, Steve, as the water engineer, and the Governor's secretary. Is Mr. Bahr still here?

Senator BINGAMAN. I don't believe he's still here.

Mr. BAHR. Right here.

Senator DOMENICI. Okay. I will ask you all to produce, at least for this Senator, additional information and evidence with reference to the future needs. I really don't believe there should be a dispute about the designation. I think the dispute should be the one I described about 30 or 40 minutes ago. And frankly, if the communities involved that have bought this water and are paying so much money for it, if they can't do a somewhat better job—and I'm not being critical of anyone at this point—a somewhat better job of quantifying its potential in terms of when it's needed, what happens if we don't do this, I don't see how they can make much of a case in this.

I came here open-minded, and the more I hear about it, I don't understand the concern about 15 to 20 years from now. I would be prepared to be concerned about even 30 years from now, because some of our decisionmakers in the past were 30 years ahead, and they made some very good decisions. In spite of his concern about the losses in the San Juan-Chama and getting the water here, I think that was a good deal. There wasn't much known about how to get it over here any other way. But, I didn't know any other way to get it across without wasting some.

But, I think you all have to quantify, in some better way, the need, or we're left with a situation where we're balancing an interest that is extremely hypothetical, maybe non-existent. I hope you'll do that. At least it will be helpful to me. If you don't, I don't know where we'll find the interest over which you've expressed a concern.

Thank you, Mr. Chairman. [Applause.]

[Senator Domenici left the proceedings.]

Senator BINGAMAN. We have one additional panel that we're going to have time for if we hurry through it. And we'll dismiss this group, and Tom Udall, Guy Trujillo, Robert Cotitta, and Steve Miller are the final panel.

Since we are running out of time, I'd like to go ahead with the witnesses, and again ask them if they would please, please summarize their testimony in three to five minutes, if they can. That would be a great help to us.

Tom Udall, why don't we start with you? You are the President of the Rio Chama Preservation Trust, and we welcome you here.

Tom and I had the opportunity to fly over the Rio Chama with Senator Bumpers several weeks ago and found it a very enjoyable and interesting trip, and we appreciate all your hard work on this issue.

STATEMENT OF TOM UDALL, PRESIDENT, RIO CHAMA PRESERVATION TRUST

Mr. Udall. Thank you, Jeff.

My name is Tom Udall, and I'm representing the Rio Chama Preservation Trust. I'm the President of that organization, which is really a coalition of groups that has mainly been responsible, I think, for our enthusiastic support here today, Senator Bingaman, of your bill.

I'm not only here, though, as the President of this organization. I'm here as a boater. I'm here as somebody that loves rivers. I'm here an Albuquerquean who is concerned about the recreational resources that Albuquerque might need as we grow in the future.

As all of you know, the Rio Chama, it has been said—and it is very true—it is within three hours of three-quarters of the population of New Mexico. And we believe, and I believe this in Albuquerque, that it's a vital resource.

First of all, because the coalition has been working with Senator Bingaman and Congressman Richardson and has also been working with Senator Domenici at coming up with this bill, I would like to compliment you on the way you and your staffs have worked in coming up with Senate bill 850. I think there may be some need for some minor tinkering, but it appears that everyone here today is in agreement that it is a very solid bill and a good bill.

I would just like to go through a little of the history of my organization, because I feel that this organization is largely responsible for a lot of you being here.

The Rio Chama Preservation Trust grew out of a movement. In 1977, the Scenic and Pastoral Act was passed by the New Mexico Legislature. And after that was done, everyone assumed, "Well, the river was taken care of." And in 1981, we learned with this additional 200,000 acre-feet of storage that it wasn't taken care of—that Adobe Ruins, the lower take-out point, was being threatened with flood waters intermittently, and that there were real problems. And this group grew out of that 1981 expansion of the waters at Abiquiu Dam.

I think it's fair to say that we are here today because we are concerned, Senator, about the last four or five miles. And that's basically what we're talking about, because it's the last four or five miles that are in the shadow of Abiquiu Dam. It doesn't sound like anybody that has come today is willing to contest the Wild and Scenic Designation above the spillway.

The Rio Chama Preservation Trust, I want just to tell you briefly some of the groups that belong to it. And if I forget any of you, please forgive me. But, I'm going to be talking about land owners, I'm going to be talking about boaters, I'm going to be talking about Rio Arriba County residents and also about environmentalists.

But, two of the big groups—the land owners at Ghost Ranch—Ghost Ranch ended up giving the City of Albuquerque the original easements for the 200,000 acre-feet. And they can tell you—their representative is here today—that they did that. But, they no longer want additional easements, and they would be very reluctant to give up additional land. They support Senate bill 850 because it prevents future storage and it prevents the additional flooding of their land.

The other major land owner—you've heard from Fred Berry—but, one of the other major land owners is the Monastery for Christ in the Desert. They also are very concerned about an increased reservoir. Their concern is about what it would do to their retreat. As many of you know who have visited there, they have a very tranquil, lovely place to go to and just enjoy the Chama. They're concerned about what would happen there, and I think it's fair to say on their behalf that they support Senate bill 850.

You'll hear from Steve Miller, who's one of the boaters on the river, and you'll hear about the economic benefits. I've known Steve a long time, so I'm sure he'll cover that very well. But, I think it's fair to say, just in summary, that the boaters, this is a growing industry. Northern New Mexico is growing with tourism. It's the type of people like Steve Miller that are going to make a difference as to whether or not we do grow in that area. And it's a very productive area to grow in, because it's a non-polluting area, and it's a great industry. They also feel that the lower four or five miles are essential to a good, pleasant, lovely raft trip on the Chama.

The other part of our coalition are Rio Arriba County residents, Senator Bingaman and Congressman Richardson. They are concerned, as Fred Berry expressed a concern, about downstream. They are concerned that there is a possibility of flooding if there is jeopardy to the dam.

There is a group in Rio Arriba County which is also the Acequia Association which is very concerned, because they have seen, with the growth of the size of the reservoir, very unpredictable releases. And these unpredictable releases have washed away their diversion structures, and they've hurt their ability to farm down below the dam. So, you can see that the Rio Arriba County residents, the acequias and you've heard from the chairman of the Rio Arriba County Commission.

And the last group I would just like to cover briefly is the environmentalists, and I guess they range all the way from the fellow that wore the eagle head in here—the Earth First-ers—to just people that love the environment. And our basic concern is that we're going to lose a very precious resource. And we believe that this resource is something that should be protected and that it deserves Wild and Scenic protection.

The big question seems today to be here is, is it time now? And we feel it is time. We feel, Senator, that we have come to the point

where we have to weigh storage as opposed to resource. And we think that this area—and I would just like to talk just briefly about what is meant by "this area," because we're talking about archeological resources.

The Corps of Engineers, they didn't tell you here today, but they estimated if you had to flood all the way up to the spillway, it would cost them $2 million under current laws to do mitigation—to collect and study and basically pull together all the archeological mitigation on the Chama. There are very valuable paleontological resources there. Some of the oldest fossils in New Mexico have been discovered at the Ghost Ranch.

We're also believers in the wildlife habitat and the one-day trip down the river, and I think the coalition has come to the conclusion that now is the time.

So, I would like to answer the question, just finally, that was posed by Senator Domenici, because that probably is the issue that has been put forward here. And that question was, there are two hurdles, from what he was saying. And he felt very strongly, it seemed to me, that it was going to make it much more difficult 30 years down the line if you had this hurdle of Wild and Scenic protection.

Well, the other side of that argument is, if you have a national resource—a precious national resource, and the United States Congress, in its wisdom—the wisdom of Jeff Bingaman and Bill Richardson—says that this is a national resource, then what you've done is, you've designated this resource as a national treasure. It isn't just New Mexico's treasure; it is a national treasure. And when you do that, then if you want to desecrate that—if 30 years down the line, you want to flood it—you then have to come back and come back to Congress to designate it. And I think many of us feel here and many of us that are part of the coalition feel that that is not a very big hurdle—that once designated, the desecrators should have to come back and make a compelling case to take it out of the Wild and Scenic protection.

So, that's my answer to his question. I think the question that you should be asking yourselves is not the question of future options, but it should be future options—not future options for storage, it should be future generations. What are you going to leave future generations 30 years from now? Are you going to leave them another reservoir—which we already have three or four on the Chama—which evaporates, as Mr. Turner told us, or are you going to leave them a great stretch of river that they can enjoy forever?

I hope that you make the right choice. I can tell you personally, as a voter, that I've gone on many of the rivers in the West, and few are as beautiful as this one.

Thank you. And I will certainly be available for questions.

Senator BINGAMAN. Thank you very much, Tom. I appreciate it very much.

Next is Guy Trujillo, who is the Chairman of the Albuquerque group of the Sierra Club.

Guy, we're glad to have you here.

STATEMENT OF GUY TRUJILLO, CHAIRMAN, ALBUQUERQUE SIERRA CLUB

Mr. TRUJILLO. Thank you for coming to Santa Fe, so we could all have a chance to speak with you.

As you indicated, I am the Chairman of the Albuquerque Sierra Club. And I would like to comment to the one gentleman on the previous panel that we are one of the many large special-interest groups, not small. Historically, the Sierra Club supported conservation—do I need to repeat that again?

Senator BINGAMAN. I think everyone heard that.

Mr. TRUJILLO. I think everyone knows historically the position of the Sierra Club in terms of the quality of life, so I won't spend time talking about our past history.

I am here to confirm again the Sierra Club's present and historical support for the preservation, protection and maintenance of the scenic beauty of the Chama River, as described here today by many competent witnesses and by the two bills, the Senate Version 850 and House Bill 1839.

I have personally had the opportunity and the privilege of traveling the Chama. I have seen the beauty of the rivers—its canyons, its mesas, and its wildlife—and I've enjoyed it, and I have seen other people enjoying it. I was able to enjoy the river because of a recreational release, I would like to point out. Otherwise, it would have been there for really no one to enjoy.

I have also seen the damage done, regretfully, by the excess storage of water in the Abiquiu Reservoir. I have seen flooding that unnecessarily damaged natural recreation sites and other wildlife sites. I have seen flooding turn the lower Chama into a mud flat, destroy the natural rapids for the lower section of the Chama. And I'm also told what has been repeated here—that several archeological sites were unnecessarily damaged. I use the term "unnecessarily," because it is my understanding that has been confirmed here today that, indeed, for the next 30 to 43 years, Albuquerque has all the water it needs.

We do not favor an amendment that gives undocumented license to diminish the Chama River as a recreational site and a natural site of great beauty. We do favor documented justification for the use or possible misuse of the Rio Chama, as we have had to document in other cases.

Sierra Club is not afraid to document or jump through the various hurdles as required by statute and various committees, and I don't see why the City of Albuquerque shouldn't have to do the same thing. It seems to me like a great deal of documentation is, in fact, necessary.

And I would like to make a point that whatever action might be taken as a result of these two bills is irreversible. I don't know that anything is irreversible. I assume that Congress will continue to be in session 20 years from now and will continue to make modifications of legislation as appropriate for the needs of the citizenry.

Finally, I would like to make a comment for the fishermen that were here. This was news to me, but it fits in. I would like to add that there are many fishermen here and boatmen that also are concerned about Abiquiu being filled to capacity. It destroys their

fishing areas, it destroys boating sites, and it makes it a real chaotic situation.

And I would like to thank you for the opportunity to speak here today. Thank you.

Senator BINGAMAN. Thank you very much, Guy.

The third witness in this panel is Robert Cotitta, who is with the Adobe Whitewater Club.

Robert, we're very glad to have you here today.

STATEMENT OF ROBERT COTITTA, ADOBE WHITEWATER CLUB

Mr. COTITTA. My name is Robert Cotitta.

I am editor of "The Flip Line." "The Flip Line" is the official newsletter of the Adobe Whitewater Club. Our club is made up of kiyakers, canoers and rafters in the state club. I myself have been kiyaking for about seven years, and I am speaking on behalf of the private voters.

We feel that there are already five major lakes in just northern New Mexico. They are Navajo, Herron, El Vado, Abiquiu, and Cochiti. The private boaters feel it is very important to protect the entire 31-mile stretch of the river between El Vado and Abiquiu.

The Chama is a beautiful little river. The river is also one of the few overnight runs left in the state. The first day is mostly tame. The second day of the trip is whitewater excitement. Just a few miles down from where you get in to begin the course, you begin to encounter Ponderosa pine and fir. As you float into the lower canyons, the quality in terms of cottonwood and the whitewater begins to pick up.

It is the lower stretch of the section that is endangered. If the lower section is drowned, there will be a lot of people making a long, nine-hour trip from Albuquerque for nothing. By the time you drop off your cars and pick them up, it's nine hours. Also, many people go just to run the lower stretch. This is not erected from the user days, either. It is now. That is not on the record.

The rapids in the lower stretch of the river are not so difficult that you have to be an expert to run them. Once you get your basics, you can have a lot of fun on the Chama. The Chama is also good for families. Whenever I go up, I see a lot of people of all ages having fun and enjoying themselves.

Without the lower stretch of whitewater, people would have to travel the more difficult stretches of the Rio Grande, such as the Pilar Race Course and the Taos Box. It would also add to the crowded conditions that already exist on the Rio Grande. And keep in mind, other than the Rio Grande, Chama is really the only other rapidable river in New Mexico.

Why damage this beautiful river any more? The rising lake has already damaged more of the Chama. When the water drops, the section that was under water would be mud bog. All trees and vegetation that were under water would be dead.

I've attended many public hearings held by the Corps of Engineers. Last year, they said they had no way of knowing how much snowmelt was coming down from the mountains. This year, the Rio Chama was again bogged by the lake. Yet, it was well-publicized in the Journal and many places that this year was going to be a

record runoff. We feel there is a need for better people to handle this.

Whitewater boating is one of the fastest-growing outdoor sports. It encourages tourism and the economic growth in northern New Mexico. We need to keep the river for future generations to enjoy it. If we leave the Chama alone, it is a constantly changing, self-renewing natural resource. If the lower section is lost, not only will it be changing, but the lake will slowly but surely spill itself, and then what? And that, you know, plus evaporation.

Okay. The original Wild and Scenic bill is a good, solid bill to protect the Rio Chama. Let us pass this bill without amendment and protect this unique and beautiful river. Thank you, and if you have any questions.

Senator BINGAMAN. Thank you very much, Robert.

Our final witness is Steve Miller with the New Mexico River Outfitters, and he's joined by Steve Harris, who is the State Chairman of the Western River Guides.

STATEMENT OF STEVE MILLER, NEW MEXICO RIVER OUTFITTERS, ACCOMPANIED BY STEVE HARRIS, STATE CHAIRMAN, WESTERN RIVER GUIDES

Mr. MILLER. As you heard, my name is Steve Miller, representing the New Mexico River Outfitters Association. Myself and wife, Kathy, are the owners and operators of New Wave Rafting Company, one of about 25 outfitters that rely on the state's waters, and we're located here in Santa Fe.

We have been in business since 1981, serving both local rafting enthusiasts and visitors, but primarily the latter. Our gross receipts have grown year by year, as has our organization. This year, we expect our total receipts to be approximately $170,000.

From mid-April to mid-September, we employ about 15 people. Last year, August was our busiest month, our clientele being almost exclusively visitors.

At this time of the year, mid-summer—right now—our operations are run solely on the Rio Grande, with the exception of some weekend trips to the Arkansas River, about which I'll comment briefly in a moment.

We offer a nine-mile full-day and a six-mile half-day trip. But because of massive irrigation diversions in the San Luis Valley of Colorado, at this time of the year and for the remainder of the summer, the Rio Grande is running very low—approximately 200 to 300 cubic feet a second. It is a meager offering to our visitors, many of whom are coming to escape the heat of the southern tier of states.

It appears that, at present, there is no way to obtain better flows on the Rio Grande. Meanwhile, on the Arkansas River in Colorado, there exists a $4 million rafting industry. I have just returned from a trip there this weekend. They are enjoying dam releases of approximately 1,000 cubic feet a second with hundreds of boats on the river. These dam releases were just secured, allegedly with the intervention of the Governor, in view of the fact that hundreds of thousands of dollars of revenue and the reputation of the river was in jeopardy.

This brings me to the Rio Chama. As you know, the boatable section, which in part traverses the Chama Canyon Wilderness, is located between the upstream El Vado Dam and the downstream Abiquiu Dam. The flow of the Chama, as we've heard, is also augmented by the San Juan-Chama Project.

The Chama makes a glorious two-day wilderness trip with easy whitewater, magnificent groves of tall trees, rainbow-hued sandstone cliffs and abundant campsites. Shortly downstream from where the Chama exits the wilderness at the Christ of the Desert Monastery starts the one-day trip with the most and best of the whitewater. It is this stretch, either as the conclusion to the two-day trip or by itself as the one-day trip, that is threatened by inundation, should Abiquiu Reservoir be permitted to fill further.

Mid- to late-summer releases from El Vado Dam have already been negotiated and obtained, but not yet in a sufficient or predictable enough fashion to allow for effective marketing. Right now, with 200 to 300 cubic feet a second in the Rio Grande, we could be offering one-day or overnight trips on the Chama with dam releases at 1,000 cubic feet a second. And might I add that we have had so many customers ready to go, and then the releases are just like they never existed. They just are not available. I can go into that more, if you want to discuss it at length afterwards.

In any event, everything to make this possible is in place. It's happening on the Arkansas. The upstream reservoirs are there—storage that exceeds present demand. The reason why we've gotten so few releases this year, you've already heard the reasons. Abiquiu is too full to accept more water with unusable, unsellable City of Albuquerque water. So, they can't accept more, as things presently stand.

So, what I ask for is readily accomplished, given political purposes. Extend the Wild and Scenic boundary as per the unamended bill, to the traditional and logical end point of the Chama trip, thus preserving the rapids and the one-day trip, and provide reliable, predictable mid- to late-summer releases of 1,000 CFS. That will give us a river second to none—gloriously wild, incredibly scenic. And truly, this is not hyperbole. This river is just gorgeous and suitable for all.

And in more practical terms, from the point of view of the small outfitting businessman, it would not only make available 30-plus miles of runnable river—and let me point out that at this point, the Taos Box, which I'll mention in a second, is no longer runnable. Thirty-one miles of runnable river is a 200-percent increase in available whitewater river resource right now. So, it would not only make available 30-plus miles of runnable river—again, both as an overnight and a one-day river trip—but a more pristine river in a scenic setting completely different from that of the Rio Grande.

The two rivers, in fact, compliment each other perfectly—sandstone cliffs, pines, cottonwoods, box elders with easy whitewater versus the somber basalt cliffs of the Rio Grande, Class IV in early season, dewatered in late season. Making the Rio Chama available all summer long will truly put New Mexico on the river-running map.

Already, we see the reputation of the Taos Box drawing attention nationwide, but the Taos Box was over this year on July 12 with approximately 500 CSF left.

Give us the Chama all summer long, and all of Texas will know about it within two years. [General laughter.]

I knew I'd get a good one on that.

Let me compare it just for a second to the Pilar Race Course on the Rio Grande. The one-day trip could easily equal the use on the Palores at the Rio Grande, which last year was 22,000 user days. The Palores did 22,000 user days last summer. The one-day run on the Rio Chama will equal that use in short order, and it's something that is more suitable, in fact, on a season-long basis. Thus, it represents a potentially significant boost to the tourist industry of northern New Mexico, and it is readily available right now.

You, our Congressman, can make it happen. Let's use our river for recreation. We have enough water behind dams. We lost the magnificent White Rock Canyon of the Rio Grande and Bandelier National Monument behind Cochiti. Don't allow for the further filling of Abiquiu. It seems clear to all who observe that dam storage expands to fill the space allotted to it.

Now I want to add these extra comments after having listened to a lot of things said earlier by a lot of representatives of agencies who seem to get preferential hearing.

Senator BINGAMAN. You don't think you're getting an equal hearing?

Mr. MILLER. I'm sorry.

Senator BINGAMAN. You've run over your five minutes, too.

Mr. MILLER. OK. [General laughter.]

This is a more spiritual sort of thing.

We in this country, I believe, are at a spiritual crossroads. Growing concern with the loss of the natural environment and the growth of ecological awareness prompts most Americans to ask, "What's better—continued destructive manipulation of the environment for whatever reasons, or preservation of the natural environment to enhance the quality of life for our present population and our children and their children?" 'The American citizen, as opposed to self-serving agencies and groups, wants the natural environment preserved. Thus, truly far-sighted legislators will identify this increasing requirement of the American people over the tired litany that calls for development based on forecasts of growth. Lead us, Senators, towards a better life.

Thank you.

Senator BINGAMAN. Steve Harris, do you have a statement you need to make there?

STATEMENT OF STEVE HARRIS, NEW MEXICO CHAIRMAN, WESTERN RIVER GUIDES ASSOCIATION

Mr. HARRIS. Mr. Chairman, I'm going to make this the briefest of all possible statements here. I have a long statement prepared. I'm going to add it to the record. It includes some evidence that I'm not going to be able to present, and I hope that you'll give this some viewing and some consideration and Senator Domenici can also see this, and that the other people that were, like me, listed as addi-

tional testifiers to this panel will also get a reading of my written statement testimony.

What I wanted to point out was the actual economic impact that river-running is making on New Mexico right now, and I've developed some figures.

What I think this points out is that there are enormous potential uses for this river that are not being realized right now. Mr. Miller addressed some of the reasons why.

But, this potential could mean new income to New Mexico; it could mean more new jobs to New Mexico; and, not incidentally, increased tax revenues to the United States government and the New Mexico government.

We are not opposed to the legitimate needs of the municipal and industrial growth or agriculture. We simply feel that recreational interests have not had a real place in the planning for the economic future of this state. And right now, our little industry—the river-running industry in New Mexico—generates 20,000 visitors. That was in 1987. We are about to top the $1 million mark in gross sales. In using standard economic multipliers, we are of benefit to Taos, Rio Arriba, and Santa Fe Counties of roughly $3 million dollars. That is the hotels, motels, restaurants, and related service. We are providing 200 jobs for New Mexicans, and we're providing close to $35,000 in tax revenues to the state of New Mexico. That is just a drop in the bucket.

Mr. Miller alluded to the Arkansas River, which I think is an analogous situation. There are just about three good river runs, just like the whole of New Mexico has, compromising about 70 river miles, so it's real analogous. Let's contrast this 20,000 visitor days in New Mexico to 130,000 on the Arkansas. The $900,000 income to $4.3 million income, the net benefit to the counties in which this activity is taking place—3 million here in New Mexico, 19 million in the two counties of Colorado and the net revenue to the state of Colorado of $150,000. This is the kind of potential that we represent.

And I just want to petition you to preserve the Rio Chama, and thereby make a statement that we're going to encourage the economic wave of the future and not just the economic wave of the past.

[The prepared statement of Mr. Harris follows:]

CHAMA PAGE ONE

My name is Steve Harris and I am here as the New Mexico State Chairman of the Western River Guides Association. Western River Guides is the trade organization for over 300 commercial river running companies, including nine here in New Mexico. Our membership represents a 100 million dollar industry in the 12 Western states.

I'm particularly grateful for the opportunity to testify before this panel on behalf of an industry that seems to be mostly invisible to public officials in New Mexico. Still, despite our novelty, river running is in the process of making a positive impact on the economy of our state.

In 1978, there were only 4 or 5 small companies offering guided river trips in Northern New Mexico. Their economic contribution was insignificant, at best. While we were beginning to evolve, the industry was already coming of age in California and Idaho and Colorado, making enthusiastic boaters of citizens of all stripes, including Attorney General Kennedy, Senator Goldwater, and Presidnet Carter.

The river section that we perceived as our big attraction was White Rock Canyon, near both Santa Fe and Los Alamos, which was and still is a hotbed of kayaking and rafting enthusiasm.

When White Rock Canyon was inundated by Cochiti Reservoir, the focus shifted northward to the Taos Box Canyon in the heart of the Rio Grande National Wild and Scenic River. The Rio Chama was little known to boaters and there was little or no commercial activity there.

As the river running industry in New Mexico began to tread the path taken in other states, it was inevitable that the Chama would be discovered, and so it has, having been enjoyed by an estimated 1500 persons during the brief 1987 season. We've grown dramatically over the past nine years to the point where we are likely to pass the one million dollar mark in gross sales next season. We are regarded as a serious economic force in the communities of Santa Fe and Taos.

the communities of Santa Fe and Taos.

I hope to demonstrate that there is still an immense, sleeping potential for commercial river running: the potential to create a considerable source of new income in New Mexico, to provide new jobs in an area that must be considered economically depressed, and incidentally to increase tax revenues to the governments of New Mexcio and the United States.

By way of illustrating these present and potential benefits, I remind the panel that Recreation and Tourism is the largest industry in our state and that river running is one of the most swiftly growing components of this industry. We believe public legislation should encourage Tourism as a supplement to the floundering mining and petroleum industries in this state.

You gentlemen are considering a measure today that is vitally important to the 15 companies that are licensed to operate on the Rio Chama. To fail at this point to Wild and Scenic Rivers protection for the Rio Chama would be to discourage the future growth of river running in New Mexico. Most especially we urge protection for the 5 mile whitewater section which is threatened by the liklihood of increased water storage in Abiquiu Reservoir. For it seems certain that the water consuming entities at Albuquerque and Elephant Butte will seek to store the maximum volume of water permissible, despite the lack of evidence that it is in anybody's real interest to do so. And maximum storage at Abiquiu would deface and diminish the attribute most attractive to our guests, the whitewater rapids below Christ in the Desert Monastary.

I certainly do not come before you opposed to the legitimate needs of municipal and industrial growth, or of agriculture. We simply feel that it is now time that recreational needs are afforded their just status alongside older, more-entrenched uses; and that a true assessment of the projected needs of such uses does not justify more storage in Abiquiu- especially since there are already 8 Hundred Thousand acre-feet of water in storage

in the Chama Basin... and most especially since permitting this storage will impede the development of an emerging industry.

At this point, I think a brief comparison of the similarities and differences between the status of the commercial river running industries of New Mexico and Colorado will be most instructive.

For instance, the industrial bases of both states are quite similar; both states have tremendous scenic appeal; both are natural magnets for visitors; both have tremendous demands placed on their water resources- to the point where water battles are almost continually in the news.

Unlike New Mexico, Colorado has conciously recognized that recreation is the way of the future, and their planning already reflects this. This favorable atmosphere is largely responsible for a whitewater industry worth 60 million dollars to Colorado. Some communities have river running as the chief component of their economic bases. These local communities accomodate and encourage our industry, and are rewarded with an ever-increasing volume of summer visitors.

No more eloquent statement of the value of river running to a depressed area can be made, than the contrast between Lake and Chaffee counties. Once mining was king in both of these counties. Today, largely thanks to the river industry, Chaffee County has an unemployment rate of 10%, Lake County has 50% unemployment. It is apparent that Colorado has discovered a new kind of gold mine to replace the mines that have shut down.

Whether we admit it or not, New Mexico competes with Colorado for the affections of tourists. We are handicapping ourselves in this competition if we

inadvertently cripple development of the Tourist Industry.

The Arkansas River is about four hours north of where we now sit, and offers some interesting parallels to the available river resources of New Mexico. Like New Mexico, the Arkansas has 3 excellent river runs in less than 100 river miles.

Unlike New Mexico, the Arkansas has 63 river companies, employing over 1200 people, generating nearly 5 million dollars in direct income during the summer months. The Arkansas River will attract about 130,000 visitors this year....and these visitors will spend close to 20 million dollars in Chaffee and Fremont counties.

CROA, the Colorado River Outfitters Association, estimates that their river industry has grown at a rate of about 70% a year since 1970. Colorado's outfitters are well organized, and they're visible, and as one Arkansas River Outfitter recently told me: "you ain't seen nothing yet!"

Economically, I think that the Arkansas River represents the kind of potential that exists for us here in New Mexico, IF the right conditions are met.

The key is official recognition and protection of the river resources and consideration for river running in the management of our surface water resources. (CHART)

As to the state of the river running industry in New Mexico: In 1987, our industry will generate a little less than 9 hundred thousand dollars in direct revenues, resulting in nearly 3 million dollars in gross revenues to related businesses in Santa Fe, Rio Arriba and Taos counties.

This amount was generated during an approximately 7-week-long season from May 1 through mid July (a period that does not even include much of the traditional peak visitation season of July and August). Virtually all of the river use occurs on the Taos Box Canyon, the Rio Grande near the village of Pilar, and the segment of the Rio Chama with which we are concerned here today.

The Chama itself generated about 129 thousand dollars of this total, or a little less than 15% of the total industry gross.

Contrast this with some figures that project the same rate of demand through the Labor Day weekend, an additional 6 weeks on the Rio Grande, and the much discussed 10 weeks of recreational dam releases on the Rio Chama.

The river running industry MIGHT have grossed one million-four hundred and fifty thousand dollars, resulting in 4 million-eight hundred and forty nine thousand dollars to related businesses in the 3 counties. Overnight wilderness trips on the Rio Chama could have generated another 216 thousand dollars to the river running companies AND an additional 7 30 thousand dollars to related businesses.

(For the sake of clarity, I have compared actual gross income, projected gross with instream flows, and the Arkansas River figures so that you can easily compare real income to the potential). Please note that tax revenues are also shown, and while these amounts..... won't put much of a dent in the national debt, they are considerable.

Perhaps mindful of the potential of river running to help boost the states economy, the New Mexico Division of Tourism and Economic Development placed this advertisement in national publications like Sunset magazine. (SHOW AD TO PANEL) I find it ironic that this kind of exposure stimulates inquiries about rafting on the Rio Chama that we are unable to accomodate because of insufficient water flows during the late Summer season.

At this point I must emphasize that the entire capital investment necessary to turn these figures from theory to reality is already in place. We already possess the necessary expertise to make it happen. And there is no doubt in our minds that sufficient demand exists for our services to make these forecasts happen

services to make these forecasts happen.

The blunt fact is, gentlemen, that the flows of our rivers are currently being managed in ways that are LEAST beneficial to our industry. Our needs and the potential benefits to New Mexico are not being given consideration in the decision-making process. Surplus water is being transferred downstream during the winter months when recreational boating is impractical.

The figures presented are for commercially outfitted activities. I cannot estimate the economic value of privately outfitted activities on the river, except to state that they add considerable value to the equation. Similarly, I cannot project the rate of future growth of private boating and fishing, except to state that they too are virtually certain to increase, with a corresponding growth in value.

Gentlemen, I am a small businessman and not an economist. Therefore, what you see are simple, conservative, defensible figures. If we put an economist to work on this issue, we would probably get considerably higher figures.

In fact, agricultural economist Frank Ward of New Mexico State University in Las Cruces recently published a study of the "economics of water allocation to Instream uses on the Rio Chama." Permit me to quote form Ward's findings: (QUOTE PAGES 381, 391)

River running does not consume the water it uses and I cannot believe that it is incompatible with other uses. Moreover, with its hundred year history of expansion, irrigated agriculture is fully developed on the most promising lands. To plan for continued rapid expansion of irrigation is to be a slave to the past. Recreation and Tourism are the wave of the future. Shouldn't we be guided by such clear trends in our future planning?

CHAMA PAGE SEVEN

I hope I have presented a case for instream flows based on sound economics. Why are the five threatened miles so critical to river runners? Briefly, it is because we see in them a potential offering not even considered in Ward's economic assessment: a very appealing white-water day trip, the logistics of which dictate no more than an 8 mile run below the Monastery. Inundate the lower end to elevation 6313, even for a year or two and this potential new product will never hit the market.

If I may ask your forbearance for a few minutes longer, I'd like to ask those in our audience who are employed in New Mexico's river industry to stand for a moment. (PAUSE) The men and women whom you see here represent a fraction, perhaps % of the New Mexicans whose livlihoods are linked to the river. What is at stake for them is the future of their chosen profession. But there's more at stake for them than just economics. Perhaps Tom Mottl, the Interior Department's river manager on the Rio Chama best sums it up:

"What is at stake is the loss of a unique experience that is open to anyone who chooses to float with the river down that canyon. People fall in love with rivers because a magical thing happens. Maybe it's the thrill of the rapids, or the canyon's beauty, or the early mornings and evenings in the moonlight, or the experiences with the other people on the trip. Whatever it is, the river gives them a beautiful and mystical feeling. When you take this away, you take away some of life, too."

~~(To Audience): Thank you! (WAIT FOR THEM TO SIT).~~
~~(To Panel).~~ We NEED the Rio Chama, the whole remaining section of it. River recreational resources are too precious, too scarce in our arid region as it is.

To sacrifice 4 or 5 MORE miles of river will greatly diminish its appeal to the public which we serve. It's just too great a loss to bear without adequate justification.

When White rock Canyon was inundated by Cochiti Reservoir, New Mexico lost at least one-quarter of its river recreation potential. Here was a place of remarkable beauty, stirring whitewater, archaeological significance, and natural solitude...rare things...precisely the sort of attributes suggested by our state motto: The Land of Enchantment. Today, instead of a wild place, we have an immense, sad bathtub ring in Bandelier National Monument and a leaky structure causing problems at Cochiti Pueblo.

We needed flood-control at the time: to protect our towns and villages, pastures and fields. though we didn't realize it, we DIDN'T need Cochiti Reservoir. Another site could have done the job just as well. And because we lacked sufficient foresight, we destroyed an economic asset of the future, that was barely imagined in 1976.

If we had White Rock Canyon today, the figures I have presented could have been multiplied again. Thousands more visitors might have been attracted to our region, to visit a wild river canyon. My hope is that you, our leaders, will now act wisely, having learned this lesson, and protect the Rio Chama.

1987 - Industry w/o Instream Flows		1987 - Industry projecti c Instream Flows	
visitors ud's	20,000	uds.	30,000
permittee income	$900,000	income	$1,400,000
AREA benefit	$3,000,000	benefit	$4,890,000
# jobs	200	jobs -	280
tax revenue	$32,400	revenue -	$50,400

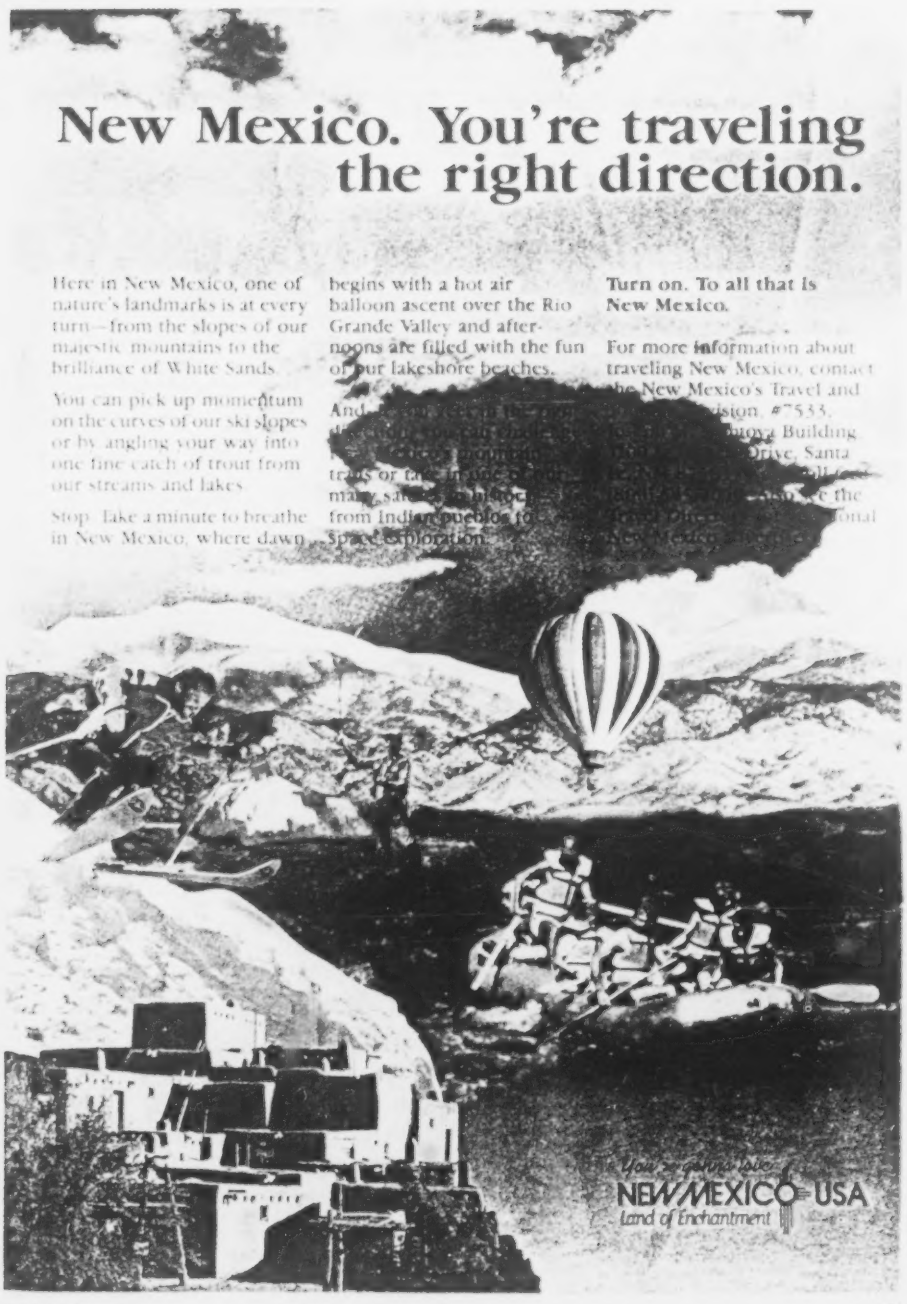
1987 Arkansas R. Colorado
(indicating potential)

ud's 130,000
income $4,300,000
benefit $19,000,000
Jobs - 1,200
revenue - $150,000

On Rio Chama

1987 w/o flows - $129,000
1987 c releases $342,000

79-562 319


New Mexico. You're traveling the right direction.
Here in New Mexico, one of nature's landmarks is at every turn—from the slopes of our majestic mountains to the brilliance of White Sands.
You can pick up momentum on the curves of our ski slopes or by angling your way into one fine catch of trout from our streams and lakes.
Stop. Take a minute to breathe in New Mexico, where dawn begins with a hot air balloon ascent over the Rio Grande Valley and afternoons are filled with the fun of our lakeshore beaches.
Turn on. To all that is New Mexico.
For more information about traveling New Mexico, contact the New Mexico's Travel and
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WATER RESOURCES RESEARCH, VOL. 23, NO. 3, PAGES 381–392, MARCH 1987

Economics of Water Allocation to Instream Uses in a Fully Appropriated River Basin: Evidence From a New Mexico Wild River

FRANK A. WARD

Department of Agricultural Economics and Agricultural Business, New Mexico State University, Las Cruces

In fully appropriated multiple-use river basins, a major potential competitor for a share of water may be publicly sponsored appropriations to supplement low streamflows for fish, wildlife, and recreation, which generates economic values not revealed in the marketplace. Based on a survey of instream recreationists on New Mexico's Rio Chama a travel cost model is developed to identify the potential recreation demand for instream flows. A discrete optimal control model is formulated that solves for the intraseasonal allocation of reservoir releases which maximizes the yearly value of instream recreation benefits, net of values of competing uses in the basin. Results indicate that in New Mexico, reservoir releases which augment low streamflows can return gross recreation benefits in the range of $900 to $1100 per acre-foot (ac ft) of water consumed (1 ac ft = 1.233 × 10^3 m^3). This compares to a $40/ac ft cost of using the water. Consequently, results strongly support the hypothesis of potential economic payoff from public investments in and management of instream flow reservations.

1. INTRODUCTION

In the arid west where water is largely allocated to private uses, a central public water management challenge is framing institutions that encourage patterns of water use which produce the maximum long run economic benefits to society. The scarcity of water, taxpayer capital, and related management resources emphasize the importance of obtaining defensible measures of water in competing uses [*Young and Gray*, 1985], given the efficiency objective of highest economic value among competing end water uses. Although irrigation and municipal consumptive uses of water have had a dominant claim on western water since the turn of the century, a storm of controversy has recently surrounded nonconsumptive water allocations for instream uses which enhance riverine recreation or preserve ecosystems in a state of equilibrium. Historically, instream or in-place water uses were not thought to have legitimate water right status; as such, rights were viewed as inconsistent with maximum utilization of water [*Dewsnup*, 1971; *Draper*, 1975; *Johnson*, 1980]. Instream rights were negatively associated by westerners with the eastern riparian law, a law which accorded low status to diversions such as agriculture and mining. In the last 10 years, the water law literature has seen a flurry of interest in these and related instream flow issues [*Kiechel*, 1976; *Ranquist*, 1980; *Reed*, 1976; *Sherton*, 1981; *Schribner*, 1979; *Tarlock*, 1975, 1978, 1979; *Thompson*, 1982; *Welsh*, 1976].

Increased demands by special interest groups for instream flow reservations from improved sports fisheries have led to studies which link streamflow depth, velocity, and substrate to fish habitat suitability. Criteria adopted by these studies are, however, largely hydrological or biological, with little focus on economic values to compare with costs incurred. Where economic studies have been conducted which optimize economic values in river basin systems, the objective function chosen has commonly been commercial values such as hydroelectricity, with instream "needs" accounted for as an extra minimum flow constraint [*Palmer and Snyder*, 1985]. Few economic studies have been conducted which explicitly examine economic benefits from instream flow reservations in multiple-use river basins. Exceptions include *Daubert and Young* [1981], *Walsh et al.* [1980, 1985], and *Narayanan et al.* [1983], all of which used contingent valuation methods as described by *Cummings et al.* [1985].

Given present public attitudes toward environmental values and the relative scarcity of sites in which minimum streamflows are currently maintained, there may be some economic merit in allocating water and/or water rights for fish and wildlife habitat, whitewater boating, and related instream uses. Before water allocations to an instream use pass the test of economic efficiency in a multiple-use basin, it must be demonstrated that the willingness to pay for the instream use exceeds the opportunity cost (benefits foregone) of diverting the water from a competing use (e.g., agriculture).

The major objective of this paper is to test the hypothesis that public investments in and management of stream flow reservations in a multipurpose river basin can be an economically efficient competitor with existing out-of-stream diversions for traditional commercial purposes. To test this hypothesis, a case study of a New Mexico wild river is presented. The travel cost method (TCM) is applied to on-site data obtained from anglers and whitewater boaters to construct recreation demand and benefit functions at several minimum streamflows levels. Results are used to construct a total and marginal benefits function associated with upstream reservoir releases which augment natural streamflows. From this benefits function a discrete optimal-control model is formulated that solves for the sequence of intraseasonal reservoir releases which maximize the seasonal value of net instream recreation benefit. Shadow values (marginal benefits) of water are computed to compare to the cost of acquiring extra releasable reservoir water from other uses in the basin. In light of the measured values of streamflow reservations, implications for management, policy, and water law are examined. Further details are provided by *Lukens* [1986].

2. THEORETICAL MODEL

2.1. *Opportunity Cost of Instream Flow*

In certain cases, the opportunity cost of instream flow reservations in a multiple-use river basin may be quite low, and thus may represent a situation where willingness to pay for instream flow augmentations merit careful examination. One

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leases that augment natural runoff are smallest early in the season and generally increase to compensate for low flows as the season progresses.

The last column shows zero release during the entire month of September for the low runoff year scenario. At very low natural flow levels (e.g., 147 cfs) it takes a major streamflow augmentation to make the whitewater experience economically viable. Our data indicated that total benefits rise quite slowly until total minimum flows are above 800 cfs. Thus at extremely low natural flows, during a dry year the benefit "threshold" is not yet reached, and there is very little economic benefit at the margin from reservoir releases.

Although Table 4 presents the optimal intraseasonal release plan with no updating allowed as new hydrological forecasts become available, the model can be updated. Suppose that on May 1 the decision maker expects a low runoff year with an optimal May release plan of 944 average cfs/day, with a resultant total monthly water quantity of 9303 ac ft released. However, once the end of May is reached, the model can be reoptimized for the June–September planning period given a new natural runoff forecast and 39,897 − 48,200 − 9,303 remaining releasable ac ft of water.

4.2.2. *Long-term management of instream flow reservations.* Table 5 shows the long-term net marginal benefit (shadow value) of streamflow augmentation, net of values in other basin uses. These values are extremely useful for the long-term planning purposes, as they can be directly compared with the cost of acquiring water from other uses in the basin. All values are measured on the basis of per acre feet consumed. Evaporation consumption from instream flow releases is 2.5% of water released from the reservoir for our study area. Gross values per released acre foot, although not shown, are 2.5% of consumptive values.

Shadow values are shown as they vary with average natural streamflow and annual quantity of water available for releases. Each entry in Table 5 is the result of one model optimization. The general tendency of the data conforms to prior expectations. As more water taken from other uses in the basin and are made available for flow augmentation the shadow value of water declines for any given natural runoff scenario. Thus as with other uses of water, increased quantity of available water allocated to streamflow augmentation exhibits a declining implicit demand price. This is illustrated most dramatically for the high runoff year scenario. The shadow value of releasable water falls from $1073 to $4/ac ft consumed as supply for instream flow augmentation increases from 10,000–50,000 ac ft.

Table 5 strongly suggests a favorable economic payoff for our New Mexico case study to long-term public investments in water or water rights allocated to instream flow augmentation. Particularly, for normal or dry water years, the gross shadow value of $900–$1100/ac ft versus a $40/ac ft cost in other basin uses dramatically illustrates that such public instream flow investments can be economically viable relative to alternative water uses in the Rio Grande Basin.

5. CONCLUSIONS

In the arid west, measurable economic values of streamflow augmentations are extremely important in framing the legal basis for instream flow water rights using the criterion of "beneficial use." In addition, where de facto instream flow rights already exist, streamflow values measured in economic terms can be compared with associated water purchase costs to judge the net economic payoff in a river basin from further instream water rights acquisition. Economic values of extra streamflow can also be used to frame reservoir release plans for a short time period such as a single season, where existing institutions permit.

This study also demonstrates that the travel cost method, in which observed travel costs by visitors to a whitewater recreation site are used to measure recreation benefits, can be used effectively to measure economic values from streamflow augmentation. Findings indicate that variations in streamflows significantly affect both angling and whitewater boating participation and related economic values.

For this New Mexico case study, water managers could move water from high mountain reservoirs to lower elevation reservoirs in summer rather than in winter and substantially increase annual net benefits generated by water use in the river basin. By a summer transfer of about 50,000 ac ft of water to lower elevation reservoirs, the extra evaporation losses of about 1000 ac ft would only cost about $40,000 annually while returning a direct instream benefit of about $950,000 in a normal year or $550,000 in a high runoff year. Water supplies remain virtually constant; only the storage timing changes.

In summary, this study has demonstrated that use of an accepted nonmarket valuation methodology combined with optimal control water management models can contribute to short-term instream flow allocations and aide long-term instream flow right acquisition decisions in a multiple-use river basin. Further such economic studies may be useful in shaping the evolution of western instream water law.

Acknowledgments. The author gratefully acknowledges financial support for this research by the New Mexico Game and Fish Department, New Mexico Parks and Recreation Department, New Mexico Water Resources Research Institute, and Interstate Stream Commission. David R. Lukens provided excellent research assistance in managing field interviewers and most of the data analysis. Allen Torell and Tom McGuckin offered constructive criticism on several drafts of this paper. Remaining errors are the author's responsibility.

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Senator BINGAMAN. Thank you very much.

I don't really have any questions of this panel. Let me defer to Congressman Richardson, either for questions or any final statement that he has, before we conclude our hearing.

Mr. RICHARDSON. Yes.

Mr. Chairman, first of all, let me thank you for holding an outstandingly substantive hearing. I don't know anything that has not been discussed. I think everything has been covered.

I would just like to add a letter from Mr. Patrick Blumm to the record of the hearing.

[The letter follows:]

Rio Grande
Rapid Transit

Box A
Pilar, New Mexico 87571

Jeff - please make sure this is part of hearing Record
BR

Dear Congressman Richardson:

Thank you for your recent letter concerning the Rio Chama. This magnificent wild and scenic resource meets the requirements of H.R.1839. By designating this segment of the Rio Chama as part of the National Wild & Scenic River System, you will be showing the commitment to water resources and also to recreation to them.

I oppose any [illegible] of this [illegible] as it would jeopardize this recreational resource and the small businesses that utilize the area to make a living for themselves and [illegible] for the community.

I plan on attending the field hearing of the Subcommittee on Public Lands on July 27 in Santa Fe and voicing my support for H.R.1839. I would also appreciate it if you would make certain that this letter is included in the hearing record.

Thank you very much. And as always, I would like to extend an invitation to you or any of your staff, to join Rapid Transit next season in floating the Nation's newest federally designated "Wild & Scenic River", New Mexico's pristine Rio Chama.

Sincerely,

Patrick G. Blumm

(505) 758-9700
Excellence in Whitewater Rafting

Mr. RICHARDSON. And I would also like to thank the witnesses, especially those that appeared on this panel and the many constituents that have written me and that appeared today on behalf of what I consider very important legislation.

Mr. Chairman, although I introduced the bill in the House, I guess when you enter a hearing, you're always open to new initiatives. Let me just say that as far as my side of the Congress is concerned, it is my hope, once again, that what I said at the beginning of the hearing prevails, and that is that the bill that you have introduced will be passed in the House of Representatives sometime this fall, if amended, perhaps, by some very small technical language that address some of the concerns raised today in the area of future water flow, but certainly not in dealing with the last five miles of the river, which I think are the key to this legislation. I think if we change that, it will gut what is perhaps the most important environmental legislation that we have had, at least since I've been in office.

So, Mr. Miller, I hope that what you said—the kind of challenge you laid for us—and Mr. Udall, is realized soon. And, certainly, this member is of the view that we should move as rapidly as possible.

I want to thank all of you for attending.

And, regretably, Mr. Chairman, the change in law that we had this last session of the speed limit did not go over 65; so, if I am to make my plane, I will have to leave you now. [Applause.]

Senator BINGAMAN. Let me just make one final statement here.

First, I want to thank Congressman Richardson for his strong support in this and for leading the charge on the House side and getting this enacted.

I also want to indicate that my staff is going to work with the various agency officials to try to improve the predictability of this release program that has been alluded to here. I don't think that's anything we need to legislate, but I think we can try to work with the appropriate agencies to see if we can't improve on that.

We had a large group of additional witnesses who had hoped to testify and who we had hoped to hear. Let me just mention the names of some of them and indicate how much I appreciate your help in getting this presented: Jim Shibley, who is with Ghost Ranch; Bill Huey, who is the former Secretary of the New Mexico Department of Natural Resources. Bill has been a strong help to me since I've been in the Senate and before that in all matters affecting the environment, and I certainly appreciate his help on this particular bill in putting it together; Hank Saxe with the Taos Environmental Association; Jay Sorenson, a Professor at the University of New Mexico, who has been very active on this issue in Albuquerque; Mary Lou Sorenson, the Albuquerque Conservation Association; Cornelia Coronado; Joe Butler; Cornelio Salazar; David Henderson, with the National Audibon Society; Art Jaramillo, who is the owner of the Rancho de Chimayo, and who went with Tom and myself and Senator Bumpers on our overflight, and who I know is a very strong supporter of this; Charlie Chacon, a Chama Valley rancher. And there is another whole long list that's been presented to me.

Let me just single out from that list Representative Max Coll, who I see is here, and who has been a champion of environmental issues for many, many years, and I know of his strong support.

There are many others who I know want to submit testimony for the record, and we want to accept that. I am sorry that we do not have time to proceed with more testimony this afternoon. I'm committed to be in Albuquerque myself in about an hour, so we will be testing the speed limit, as well.

Any of you who do have additional testimony, please provide it to my staff, either today or send it to us in Washington. Any of you who would like envelopes so that you can mail that in that are already addressed, we have some of those here in the front that you can pick up.

I personally believe this has been a very successful discussion of the issues. I believe all points of view have been discussed I introduced the bill because I do believe the Rio Chama needs the special protection provided by the Wild and Scenic Designation. I think the testimony today has supported that and certainly supported us moving forward with the legislation. We can fine-tune the legislation to clarify the working relationship between the agencies involved. We can certainly seek an independent review of the dam safety at Abiquiu. But, I think basically this is good legislation.

I appreciate everybody's attendance, and I think the show of interest in this has been outstanding. I hope that as we go forward with the legislation, you'll stay in touch with us. And thank you again for coming. [Applause.]

[Whereupon, at 1:25 p.m., the hearing was adjourned.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

10352/10
Chama

RIO CHAMA PRESERVATION TRUST

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CURTIS SCHAAFSMA
JAY SORENSON
TOM UDALL
FRED VIGIL
PHILLIP WALLIN
CHARLES ZEMACH

COPY TO JEB
Original to Toner

August 14, 1987

Hon. Jeff Bingaman
U. S. Senator
502 SHOB
Washington, D.C. 20510

Dear Jeff:

Enclosed is an additional Exhibit to the Statement I submitted at the July 27 Hearing on S.850, the Rio Chama Wild & Scenic River bill. It is the full text of an article by State Engineer Steve Reynolds regarding Albuquerque's future water supply.

Very truly yours,

Phillip Wallin
Vice President

PW:KLD

P.O. Box 2383 • Santa Fe, New Mexico 87504 • (505) 988-5922

EXHIBIT "C"

"ALBUQUERQUE'S WATER SUPPLY PROBABLY BEST IN SOUTHWEST"
by S.E. Reynolds
(Albuquerque Tribune, Sept. 11, 1980)

The city of Albuquerque is probably better situated with respect to water supply than any large city in the Southwest. A recent professional paper of the U.S. Geological Survey estimates that the volume of recoverable fresh groundwater in storage in the Albuquerque subregion of the Rio Grande Basin is 2.3 billion acre-feet.

This amount of water would be sufficient for the needs of the entire state for about 575 years at the current rate of withdrawal. In the vicinity of Albuquerque the aquifer has a saturated thickness of about 9,000 feet and readily yields 2,000 to 3,000 gallons per minute to wells.

The well-known intimate relationship between the aquifers of the Rio Grande depression and the surface flow of the Rio Grande is at the same time a blessing and a constraint.

This relationship tends to stabilize the aquifer water level and pumping lift, but makes it necessary to control groundwater appropriations strictly to protect rights to the diversion and use of the fully appropriated surface flow of the Rio Grande.

The relationship between the surface water and groundwater of the Rio Grande Basin and the threat to owners of surface water rights posed by rapidly increasing groundwater uses caused the state engineer to declare the Rio Grande Underground Water Basin, extending from the Colorado state line to Elephant Butte Reservoir, and thus assert his jurisdiction over new groundwater appropriations within that basin in November of 1956. At that time the state engineer undertook to impose a conjunctive management of the surface water and groundwater of the Rio Grande system.

Under the administrative procedures designed by the state engineer to provide for fullest possible use of the abundant groundwater resources without impairment of existing surface water rights, new appropriations of groundwater would be permitted only on the condition that the exercise of rights to use of the surface water is reduced at such times and in such amounts as will offset the effects of pumping on the flow of the river.

This move was challenged by the city of Albuquerque but upheld by the new Mexico Supreme Court in 1962, when the court found that the state engineer has not only the authority but the responsibility to thus adminster the state's water resources.

The effect on the river of withdrawals from a well located five miles from the river, as many of Albuquerque's are, amounts to 50 percent of the annual rate of pumping after 24 years. With respect to the city's wells, the measurable return flow to the river as sewage effluent is about 50 percent of the amount of water pumped.

Thus, the pumping from a well five miles from the river does not begin to reduce river flows and there is no need to reduce surface water usage until 24 years after the new appropriation is initiated.

If the annual withdrawal is 1,000 acre-feet, the city would have taken 24,000 acre-feet of the unappropriated waters of the Rio Grande Underground Water Basin before it is required to begin to offset the effects on the river by the retirement of surface water irrigation rights; because of the sewage effluent return, the flow of the river would be increased during the first 24 years of groundwater pumpage.

The pumpage would not be fully reflected in the river for about 100 years, and the city would be able to use many more thousands of acre-feet of the unappropriated groundwaters before the full effects of the pumping must be offset.

Under vested rights established by the city before the declaration of the Rio Grande Underground Water Basin in 1956, the city may deplete the flow of the river by 18,672 acre-feet. In 1979, Albuquerque pumped 86,600 acre-feet for a population of 320,000 and the net effect of these withdrawals, taking into account the return flow of sewage effluent, was to deplete the flow of the river by about 2,900 acre-feet.

Recent projections indicate that the effects of the city's pumping on the flow of the river will not reach their vested right of 18,672 acre-feet unti 1987.

The city has contracted with the secretary of the interior for 48,200 acre-feet of water from the San Juan-Chama Project. The city plans to use this water to offset the effects of its pumping beyond its vested right to affect the river flow.

The city's recent projections of usage indicate that the full amount of water it has contracted for will not be needed to offset those effects until 2025, when the city's population is projected to be 780,000.

After the city's San Juan-Chama Project allocation has been fully used, it will be necessary for it to acquire and retire irrigation water rights to offset subsequent additional effects on the river.

Non-Indian irrigators in the reach of the river from Cochiti

Dam to Elephant Butte Reservoir have rights to deplete the flow of the river by 128,000 acre-feet.

At the current per capita rate of consumption, Albuquerque's vested right to affect the flow of the river equals the ultimate effect of supplying water for 138,000 people; the city's San Juan-Chama Project allocation will offset the effects of 357,000 people; and acquisition and transfer of the non-Indian irrigation rights in the reach from Cochiti Reservoir to Elephant Butte Reservoir could offset the effects of an additional 950,000 people.

An Albuquerque population of 1.5 million people would surely pose some difficult problems, but the water supply problem should be manageable.

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August 20, 1987

Hon. Jeff Bingaman
Vice-Chair
Subcommittee on Public lands, National Parks
and Forests
Committee on Energy and Natural Resources
502 SHOB
Washington, D.C. 20510

Dear Senator Bingaman:

I have received a copy of an August 12 letter from State Engineer Reynolds to Senator Domenici, responding to a request for further comment on S.850. (A copy of Mr. Reynolds' letter is attached.) In light of the concern expressed by Senator Domenici over "Wild and Scenic River" designation of the lower portion of the Rio Chama, I wish to comment on the statement by the State Engineer.

With his accustomed eloquence, the State Engineer has made the best of a very weak case for future storage at Abiquiu Reservoir. His statement in this letter might fairly be summarized as follows: (1) The only candidate for storage is suplus San Juan-Chama water, for the purposes of leasing (possibly), recreation, and preventing escape of that water to the Lower Colorado Basin states. (2) The obstacle of cost for additional storage might be overcome by allocating a portion of that cost to recreation benefits. (3) Surplus San Juan-Chama water cannot practicably be utilized by Albuquerque for aquifer recharge. (4) Wild and Scenic designation for the last few miles of the Chama would be irrevocable and therefore unwise.

Let us assume, purely for the sake of argument, that everything the State Engineer says is correct. He has still made no case whatsoever that more storage at Abiquiu could enhance Albuquerque's (or anyone else's) long-term water supply. He urges more storage merely as a temporary measure to store unneeded water. As he says in his letter, "the need for conservation storage capacity in Abiquiu Reservoir will decline with time as the water requirements of those contracting for that water grow and the water is applied to the uses for which it was contracted."

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Quite frankly, if the only imaginable use for more storage at Abiquiu would be to provide a bigger recreational pool for a period of forty years, in order to deny water to the Lower Basin states, I fail to understand the concerns of the water agencies. When Albuquerque needs San Juan-Chama water, the water will be there. That was the whole purpose of the San Juan-Chama Project: to provide for future municipal water needs. The purpose was not to create an immense (and temporary) flatwater recreation pool.

The State Engineer emphasizes the importance of preventing San Juan-Chama water from flowing to the Lower Basin states. He omits to mention Article III(e) of the Colorado River Compact (to which New Mexico is a party), to wit:

> "(e) The States of the Upper Division shall not withhold water, and the States of the Lower Division shall not require the delivery of water, which can not reasonably be applied to domestic and agricultural uses."

To store water at Abiquiu because it is <u>not</u> needed for domestic or agricultural uses, for the purpose of withholding it from the Lower Basin states, is a blatant violation of the Colorado River Compact, which would surely provoke a lawsuit by the States of Arizona and California. Denying water to the Lower Basin appears to be the paramount interest of the State Engineer in this situation. He will do so, however, at the cost of defending yet another interstate lawsuit.

The State Engineer has taken the novel tack of justifying increased storage at Abiquiu as a recreational benefit. This is irrelevant, of course, to the real question before us: whether Abiquiu storage is needed for future municipal water supply. Let me respond, however, by noting that there is already a fine recreation pool at Abiquiu, and it is not clear what marginal benefit there would be from increasing that pool (at the expense of the whitewater resource). Ample flatwater recreation is already provided in north-central New Mexico by Cochiti, Abiquiu, El Vado, Heron, Eagle Nest and Navajo Reservoirs. Surely the State Engineer will not argue that it is vital to New Mexico's future to expand the Abiquiu pool for the benefit of motorboats, particularly since he says the Abiquiu pool will decline over time.

The issue of cost for Abiquiu storage, which is raised by the State Engineer, is a red herring. The problem is not that storage is expensive, but that it serves no beneficial use that will justify <u>any</u> expenditure by Albuquerque or others. Suppose the sunk cost of Abiquiu Dam were completely disregarded, and only direct costs of $8.50 per acre foot per year were charged

(for 467,000 acre feet of storage). The Albuquerque City Council would be no more inclined to waste $35.6 million for "bargain" storage than to waste $85.8 million for "full cost" storage for water that will simply evaporate over a forty-year period.

The State Engineer goes to great lengths, in his letter, to persuade us that aquifer recharge is not a feasible use for Albuquerque's San Juan-Chama water. Rather than refute his arguments here, we volunteer to bring forward a plan which is feasible. Clearly we cannot rely on the water agencies to exercise creativity in this area.

We must stress, however, that this argument over aquifer recharge only goes to the question: what should Albuquerque do with its temporary surplus of San Juan-Chama water? Even if we all agreed with the State Engineer that aquifer recharge is impossible, this would not help justify storage of surplus San Juan-Chama water at Abiquiu Dam. Storing a surplus of water at Abiquiu so that it can evaporate over a forty-year period can simply not be justified economically. If the water can be used for aquifer recharge, so much the better. If it cannot, then Albuquerque can forego delivery of San Juan-Chama water until it can beneficially use it. The long-term supply of water from the San Juan-Chama Project will still be secure, guaranteed by interstate compact, federal statute, and contract with the United States, regardless of how Albuquerque decides to handle its temporary surplus. (Attached is a memo we prepared for the City of Albuquerque to document this point.)

The reason we emphasized aquifer recharge in our testimony before the Subcommittee is this: the aquifer is Albuquerque's true long-term source of water supply. It is a reservoir which dwarfs Abiquiu. It ensures the physical availability of the water supply to which Albuquerque is legally entitled. We think it behooves Albuquerque to adopt a policy of enhancing recharge of the aquifer, to protect its long-term water supply. The City Council adopted such a policy, in R-183 (attached). We deplore the negativity which the State Engineer has shown in this regard, simply marshalling all the arguments he can imagine against the concept of aquifer recharge.

After all this sound and fury over storage needs at Abiquiu, the bottom line is: nothing. The State Engineer can project no demand for storage that would serve any future municipal or agricultural beneficial use. He can only propose that Abiquiu be used as a forty-year evaporation pond for surplus San Juan-Chama water, until even that use disappears and the reservoir is drawn down.

If this is the best the water agencies can propose, we suggest that the Subcommittee proceed with mark-up and enactment of S.850.

Respectfully,

Phillip Wallin
Vice President

PW:KLD
Enclosures

cc: Sen. Pete Domenici

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

August 12, 1987

BATAAN MEMORIAL BUILDING
STATE CAPITOL
SANTA FE, NEW MEXICO 87503

The Honorable Pete V. Domenici
United States Senator
434 Dirksen Senate Office Bldg.
Washington, D. C. 20510

Dear Senator Domenici:

Near the close of the hearings on S.850 (a bill to designate a segment of the Rio Chama as a component of the National Wild and Scenic River System) in Santa Fe on July 27, you said that the more you heard the more you didn't understand the concern of state and city officials and that the arguments against protecting the river were so vague and so hypothetical that those officials should take more time to document their case. I am pleased that you have invited the further comment on S.850 that I offer here.

The Rio Grande Compact's rigorous limitations on the operation of storage reservoirs constructed in New Mexico between Lobatos and San Marcial after 1929 make the utility and economic justification of additional conservation storage capacity for Rio Grande system water on the Rio Chama, or elsewhere above San Marcial, extremely marginal at best.

Under present circumstances, the entities that have entered long-term contracts with the Secretary of the Interior for San Juan Chama Project water do not yet have need for the full amount for which they have contracted. As a consequence, the regulatory storage of the San Juan-Chama Project (Heron Reservoir with a capacity of 400,720 acre-feet) has been nearly full for several years. It has been necessary for the Bureau of Reclamation in operating the Project to bypass divertible flow at the diversion works of the San Juan-Chama Project, allowing New Mexico's Upper Colorado Basin Compact allocation of water to flow down to the Lower Basin. Enactment of Public Law 97-140, which you sponsored, has made it possible to keep 200,000 acre-feet of that allocation in Abiquiu Reservoir. At this time the Middle Rio Grande Conservancy District, the City of Albuquerque, the City of Santa Fe, the Department of Energy (Los Alamos), Taos, Espanola

and Twining have a total of 187,100 acre-feet in storage in Abiquiu Reservoir. Of that amount about 170,000 acre-feet is the property of the City of Albuquerque.

Storage of San Juan-Chama Project water in Abiquiu Reservoir gives those who have contracted for that water the advantage of a supply that they can sell under short-term contract to defray a part of the cost incurred under their contracts with the Secretary of the Interior. That storage also provides excellent flat-water recreation on Abiquiu Lake. Col. Gonser, District Engineer for the Albuquerque District of the Corps of Engineers, has advised that Abiquiu Reservoir attracted 733,000 visitor days in 1986. That visitation may be compared to the 3,000 visitor days reported for the reach above Abiquiu Reservoir by the Bureau of Land Management.

There is an immediate need for additional conservation storage capacity for San Juan Chama Project water in Abiquiu Reservoir. But the estimated cost of $22 per acre-foot per year for that capacity cannot be economically justified because of the limited and uncertain demand for water under short-term contract. In this connection, it is critically important to note that the need for conservation storage capacity in Abiquiu Reservoir for San Juan-Chama Project water will decline with time as the water requirements of those contracting for that water grow and the water is applied to the uses for which it was contracted.

The important public benefits demonstrated by the visitation at Abiquiu Reservoir indicate economic justification for payment for those benefits by some entity or entities other than those contracting for San Juan-Chama Project water. It is important to note that as the need for storing imported water in Abiquiu Reservoir declines recreation benefits will also decline.

There was testimony at the hearing that the storage of San Juan-Chama Project water long before the time it is needed for the uses for which it was contracted allows wasteful evaporation. Under both state and federal Law, this is, of course, quite incorrect. Recreation is a recognized beneficial use, and it seems clear that the imported water presently stored in Abiquiu Reservoir provides very substantial public recreation benefits. From New Mexico's perspective, allowing the water to go to the Lower Colorado River Basin can more appropriately be termed "wasteful", particularly when we are delivering more water to Mexico than the Treaty requires, and more than Mexico can use.

There was also extensive testimony critical of the management of San Juan-Chama Project water. As I recall, the testimony was that evaporation could be avoided by simply taking the

imported water from the river and injecting into the aquifer from which the City of Albuquerque draws its supply. My office has made no economic analysis of that measure, but its merit is highly questionable. It would be necessary to thoroughly desilt the water to avoid plugging the injection wells, to construct extensive works and expend costly electric energy to convey the water to the injection wells. The benefits of the injection would be so long delayed that the present worth of the benefits of the investment would be quite small.

Perhaps as critical is the fact that the water recharged by injection could not be retained in the aquifer. The increased hydrostatic head would increase the discharge from the aquifer to the river. The increased discharge could logically be accounted as San Juan-Chama Project water by the Colorado River Basin states or as Rio Grande System water by the Rio Grande Basin states. Under the latter accounting, 43% of the increased discharge that reached Elephant Butte Reservoir would be used on the Rio Grande Project in Texas. Under the former accounting, New Mexico would be in violation of the Colorado River Compact and the Upper Colorado River Basin Compact. Under either accounting, there would be no benefit to the City of Albuquerque to justify the cost of recharging the aquifer; and costly litigation before the U. S. Supreme Court would be likely.

I am in full accord with your statement in the Congressional Record of March 26, 1987, "... that attempting to undo a wild and scenic designation will prove an impossible task." The attached draft transcript of the statement presented by Mr. Wallin, an officer of the Rio Chama Preservation Trust, in Espanola on April 13, 1987, makes clear that he shares that view and that making the task impossible, "... is exactly our intention."

I am aware of no opposition to making most of the segment of Rio Chama between El Vado Dam and Abiquiu Dam a part of the National Wild and Scenic River System for the benefit of rafting enthusiasts. The real issue seems to be whether the downstream four miles of the segment proposed to be designated by S.850 is in fact, "the heart and soul of this bill." I respectfully suggest that that issue could be fairly and wisely compromised by giving deference to state law by adopting the amendment proposed at page 5 of the statement I filed at the hearing on July 27. A copy of that statement is attached for your convenient reference.

Sincerely,

S. E. Reynolds
State Engineer

SER:pt
Attachment

ABIQUIU RESERVOIR REVIEW SURVEY

SUMMARY OF COSTS FOR

ADDITIONAL CONSERVATION STORAGE

Existing Corps of Engineers policy dictated by the Water Supply Act of 1958 requires that storers pay a portion of the sunk investment cost of the project updated to current price levels. The updated sunk investment of Abiquiu Dam is $129,000,000. To determine the amount of sunk costs to be paid, the amount of additional storage is divided by the total useable storage of the reservoir and multiplied by the total sunk investment.

In addition to this, the storers must pay all specific cost associated with additional storage. These include; land acquisition, relocations, fish and wildlife mitigation, archaeological mitigation, seepage control, emergency gates, and increased operation and maintenance.

Table 1 presents these costs, the average annual cost and average annual cost/acre-foot for six levels of additional storage. Table 2 presents the annual costs of storage without the sunk costs of the dam. Annual costs were calculated at 11.07% over a 50 year repayment period.

ABIQUIU RESERVOIR REVIEW SURVEY

TABLE 1
COST OF ADDITIONAL STORAGE INCLUDING SUNK COSTS OF DAM

TOTAL ADDITIONAL STORAGE	SUNK COSTS OF DAM	SPECIFIC COSTS OF ADDITIONAL STORAGE	TOTAL COST	AVERAGE ANNUAL COST (11.07%)	AVERAGE ANNUAL COST/A.F.
50,000 A.F.	$ 5,400,000	$ 5,200,000	$10,600,000	$1,180,000	$23.60
100,000 A.F.	10,700,000	7,200,000	17,900,000	1,992,000	19.90
200,000 A.F.	21,700,000	11,700,000	33,200,000	3,694,000	18.50
300,000 A.F.	32,500,000	19,100,000	51,400,000	5,720,000	19.10
350,000 A.F.	37,600,000	24,100,000	61,600,000	6,855,000	19.60
467,000 A.F.	50,200,000	35,600,000	85,800,000	9,548,000	20.40

TABLE 2
COSTS OF ADDITIONAL STORAGE WITHOUT SUNK COSTS OF DAM

Incremental Cost

50,000 A.F.	-	5,200,000	5,200,000	577,000	11.50
100,000 A.F.	-	7,200,000	7,200,000	801,000	8.00
200,000 A.F.	-	11,700,000	11,700,000	1,302,000	6.50
300,000 A.F.	-	19,100,000	19,100,000	2,125,000	7.10
350,000 A.F.	-	24,100,000	24,100,000	2,682,000	7.70
467,000 A.F.	-	35,600,000	35,600,000	3,962,000	8.50

Mr. William Mueller
Deputy Chief Administrative Officer
City of Albuquerque

Albuquerque, NM

Dear Bill:

Some time ago we met to discuss the City's surplus of San Juan-Chama water. Lacking a market for this surplus water, the City seems faced with a choice among three courses: (a)paying millions of dollars to the Corps of Engineers for more storage space at Abiquiu Dam; (b)not taking delivery of San Juan-Chama water until the City can use it or lease it; or (c)developing alternative means of usage or storage.

With respect to (a), I attach as Exhibit A the most recent cost estimate from the Corps of Engineers. Assuming no cost overrun, the ost for 467,000 acre feet more storage would be $85,800,000. Amortized over 50 years, that would cost the City $9,400,000 per year.

With respect to (b), you mentioned a concern which has been voiced by the Water Resources Department, that if the City does not take delivery of its San Juan-Chama water in one or more years, then this might cause it to forfeit its rights to future deliveries. This concern is extremely important because it appears highly likely that the City will indeed, at some point in the near future, not be able to take delivery of at least some portion of its San Juan-Chama entitlement.

I offer the following legal background on that question, in the hope that your legal staff may be able to resolve this concern once and for all.

There are three levels of law that need to be looked at: the interstate Compacts that divided the Colorado River among the states; the statutes that implemented the Compacts by authorizing Colorado River water projects for the various states; and the contract between Albuquerque and the Bureau of Reclamation governing San Juan-Chama water.

THE COLORADO RIVER COMPACT

The Colorado River Compact of 1922 (42 Stat. 171) represents a binding agreement among all the Upper and Lower Basin states to divide the waters of the river in perpetuity. It was enacted by the Legislatures of all seven of the states and by Congress (as required by the Constitution).

The Upper Basin and Lower Basin states had different motivations for negotiating and enacting the Compact. The Upper Basin states (Utah, Colorado, Wyoming and New Mexico)

feared that the Lower Basin states (California, Arizona and Nevada) would be the first to develop beneficial uses for Colorado River water and would thus (under Supreme Court precedent) establish an equitable right to most or all of the flow, by virtue of prior appropriation. (The latter was the rule for apportionment between states in the absence of a Compact, under *Wyoming v. Colorado*.) On the other side of the coin, the Lower Basin states needed political support from the Upper Basin to get authorization and funding in Congress to build Boulder (now Hoover) Dam. The result of this standoff was two-fold: the Boulder Canyon Project Act; and the Colorado River Compact. Under the Compact, river flow was allocated between the Upper Basin and the Lower Basin, each getting 7.5 million acre feet per year (and sharing the obligation to Mexico). The Upper Basin, however, took the risk of lower flows in the Colorado, by pledging to deliver an acreage of 7.5 million acre feet per year to the Lower Basin. (The Compact is attached as Exhibit B.)

THE UPPER COLORADO RIVER BASIN COMPACT

Now that the Colorado was split between Upper and Lower Basins, it remained for the Upper Basin states to apportion their collective share of the Colorado among themselves. They did so by means of the Upper Colorado River Basin Compact of 1948 (attached as Exhibit C). (The Lower Basin states litigated their apportionment, in *Arizona v. California*, rather than negotiate a compact.) In the Upper Basin Compact, the states allocated the Upper Basin share of the Colorado among themselves by percentage: Colorado 51.75%, New Mexico 11.25%, Utah 23%, and Wyoming 14%. (Note that the San Juan-Chama project was designed to enable New Mexico to utilize its 11.25% share.)

In the deliberations of the Commission that drafted the Upper Colorado River Basin Compact, the question was extensively discussed whether a state, by non-use of the water allocated to it, could forfeit its future right to that water. The answer was a unanimous "no". I attach, as Exhibit D, the portion of the Record of the Commission containing the discussion of the "forfeiture" motion and the vote against it. Instead, the Commission approved Article XVI of the Compact, as follows:

> The failure of any State to use the water, or any part thereof, the use of which is apportioned to it under the terms of this Compact, shall not constitute a relinquishment of the right to such use to the Lower Basin or to any other State, nor shall it constitute a forfeiture or abandonment of the right to such use.

This provision is consistent with the overall purpose of the two interstate compacts, which was *to avoid litigation among the states as to priority of appropriation*, to allocate shares of Colorado flow to the various states in perpetuity,

and to enable the Upper Basin states to develop beneficial use at their own pace. In other words, the Compacts preempted and displaced the legal principle of equitable apportionment which would otherwise have been applied by the Supreme Court.

In fact, Colorado River flow has averaged far less than anticipated in 1922. Because of Article III(d) of the Colorado River Compact, any reduction in flow will reduce the entitlement of the Upper Basin, not the Lower Basin. Nevertheless, whatever quantity of flow may be available to the Upper Basin, New Mexico is entitled to 11.25%, and that entitlement is not subject to forfeiture, by specific provision of the Upper Colorado River Basin Compact.

STATUTE: THE COLORADO RIVER STORAGE PROJECT ACT

In 1956, Copngress passed the Colorado River Storage Project Act (70 Stat. 105), "making it possible for the States of the Upper Basin to utilize, consistently with the provisions of the Colorado River Compact, the apportionments made to and among them in the Colorado River Compact and the Upper Colorado River Basin Compact." A 1962 amendment (PL 87-483) added the San Juan-Chama project to the projects authorized by this Act.

The projects authorized by the Act were expressly made subject to the provisions of the Reclamation Act of 1902, as amended. Among other things, the Reclamation Act provided that in the delivery of water by federal Reclamation projects, "beneficial use shall be the basis, the measure and the limit of the right" to the use of water. (43 USC 372) It also provided that state water law governs in Reclamation projects. (43 USC 383, interpreted in *California v. United States*, 438 US 645 (1978). Applied to the San Juan-Chama project in *Jicarilla Apache Tribe v. United States*, 601 F.2d 1116 (10th Cir. 1979).) Accordingly, the Bureau of Reclamation will not deliver water from Heron Dam, as part of the San Juan-Chama project, except for a beneficial use as defined by state law.

The *Jicarilla Apache Tribe* case determined that mere storage of Albuquerque's surplus San Juan-Chama project water was not a beneficial use, under the Reclamation Act and state water law. Presumably this holding was overridden by PL 97-140, in which Congress authorized storage of 200,000 acre feet of San Juan-Chama water at Abiquiu, or indefinite amounts at Elephant Butte.

CONTRACT

Attached as Exhibit E is the "Contract between the United States of America and the City of Albuquerque, New Mexico" for San Juan-Chama water supply and repayment of construction costs. It is important to note the structure of

the Contract. Albuquerque agrees to repay its share of the construction costs for the San Juan-Chama project, amortized over a period of years (together with its share of O&M). So long as it makes those payments, it is entitled to annual deliveries of water from the project. Once the project is completely repaid, Albuquerque's water right is permanent. It is *not* a contract for the leasing of water, at so many dollars per acre foot, though it is often described as such.

The Contract recognizes that the City may not always have a beneficial use for water, or storage capacity, and that delivery may therefore not be allowed by the Reclamation Acts. At paragraph 18(i), the Contract provides:

> i. Surplus Water - In any year following construction of the reservoir storage complex for which the Contracting Officer determines that water allocated by this contract to the City is not in that year to be used or disposed of by the City and is legally available for use, such surplus may be disposed of by the Contracting Officer. For the first 10 years of the repayment period, revenues from the sale of such surplus in excess of that portion reserved for future use in Article 6b shall be applied to reduce costs payable by the City. Thereafter all revenues from the sale of such surplus water shall be applied to reduce costs payable by the City.

With respect to the City's water rights in general, the Contract further provides as follows, at 18(d):

> d. City Water Rights - The City and its agents and assigns shall have the exclusive right to use and dispose of that share of the project water supply available and allocated to muicipal water supply purposes subject to payment on a current basis of such charges as are provided for in this contract. Water may be used or disposed of for any purpose desired by the City from time to time, either within or without the territorial limits of the City as such limits shall be changed from time to time. Such use or disposal may be by diverting and applying such water directly from the Rio Grande stream system, by diverting and applying underground water utilizing project water to offset the adverse effects of such underground water withdrawals heretofore or hereafter made from the Rio Grande stream system, or otherwise as the City may desire. Upon completion of repayment of that portion of the City's water supply costs based upon a share of project construction costs, together with the interest thereon, and so long as costs based upon expenses for the operation and maintenance of the project works are paid, the City shall have a permanent right to the use of that portion of the project water supply allocated to its use herein.

ANALYSIS

A concern persists that if the City cannot, under its Contract, "use or dispose of" San Juan-Chama water to which it is entitled (48,200 acre feet per year), this will work a forfeiture of the City's right to future deliveries.

Generally, this is stated as a concern that if the Bureau of Reclamation does not divert San Juan-Chama water through the Azotea Tunnel to Heron Dam, for lack of a destination, downstream users (in New Mexico or elsewhere) will perfect an equitable right to the water in future years. Sometimes it is hypothesized that New Mexico might thereby forfeit its entitlement under the Upper Colorado River Basin Compact.

We have seen, I hope, that the latter concern is groundless. Article XVI of the Compact specifically provides that there can be no forfeiture of a state's entitlement due to non-use. Indeed, the very purpose of the two Compacts governing the Colorado River was to overcome and displace the common law rule of equitable apportionment, in order to protect the interests of the Upper Basin states.

The former concern is more difficult to address, in the light of 43 USC 383, requiring that Reclamation projects be governed by state water law. (*California v. United States* interpreted that provision broadly.) Could this mean that Albuquerque might forfeit its San Juan-Chama entitlement by non-use, under New Mexico law?

The answer would seem to be no, under *California v. United States.* The Supreme Court states, in that decision, that state water law would only apply insofar as not inconsistent with the Congressional purpose in a Reclamation project. It seems clear that the Congressional purpose in the San Juan-Chama project (read together with the two Compacts and the Colorado River Storage Project Act) was to make a permanent allocation of water supply to New Mexico, and to provide for future municipal water needs of the City of Albuquerque. (See "Hearings before the Subcommittee on Irrigation and Reclamation of the Committee on Interior and Insular Affairs, United States Senate, 85th Congress, Second Session, on S. 3648," July 9-10.) *California v. United States* does not contemplate that state water law be applied so as to negate the purpose of a federal water project. Granted, under 43 USC 372 and 383, the Bureau of Reclamation will not deliver water except for a beneficial use, it would be inconsistent with the purposes of the Compacts and statutes, as well as provisions of the Contract, to forfeit future entitlement for temporary non-use.

To summarize, the general concept of "use it or lose it", which may have utility in the realm of private water

rights, is out of place in the analysis of rights created by a federal Reclamation project. Analysis here must look to specific Compact, statutory and contractual provisions.

With regard to the option of storing surplus San Juan-Chama water at Abiquiu, it must be remembered that storage by itself is not a beneficial use of water. (*Jicarilla Apache Tribe.*) Storing more water at Abiquiu *or* Elephant Butte would not constitute a beneficial use that would deter a potential lawuit by the Jicarillas or by a Lower Basin state. Even if Congress were to authorize such storage, that might not overcome the clear directive of the Colorado River Compact, Article III(e):

> (e) The States of the Upper Division shall not withhold water, and the States of the Lower Division shall not require the delivery of water which can not reasonably be applied to domestic and agricultural uses.

This appears to mean that if Arizona or California can reasonably use more Colorado River water, then they could prevent New Mexico from storing surplus San Juan-Chama water "which can not reasonably be applied to domestic and agricultural uses. The Compact appears to require that surplus water be allowed to go downstream, until a "reasonable" need exists. Note that this is the language of an interstate compact, approved not only by Congress but also by the Legislatures of seven states. It would not appear that Congress, by itself, has the power to amend, override or construe this provision. It remains to be seen what parties would have legal standing to enforce Article III(e).

CITY of ALBUQUERQUE
SEVENTH COUNCIL

COUNCIL BILL NO. R-183 ENACTMENT NO. 177-1986

SPONSORED BY: Steve D. Gallegos

Underscored Material - New
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RESOLUTION

SETTING POLICY REGARDING THE STORAGE OF ADDITIONAL WATER AT ABIQUIU RESERVOIR AND CALLING FOR AN INVESTIGATION OF ALTERNATIVES FOR THE USE AND DISPOSITION OF SAN JUAN-CHAMA WATER.

WHEREAS, the City's participation in the San Juan-Chama water supply project has guaranteed the City a long-term supply of water for municipal use, in the amount of 48,200 acre feet per year; and

WHEREAS, the City will at some point in the future consume its full allotment of San Juan-Chama water, but at present does not consume any and sells only a small portion; and

WHEREAS, the City has the right to store 170,900 acre feet of San Juan-Chama water at Abiquiu Reservoir which, together with other users of the Reservoir, has exhausted the authorized capacity for conservation storage at Abiquiu Dam; and

WHEREAS, the U.S. Army, Corps of Engineers has estimated that storage of additional San Juan Chama water at Abiquiu Reservoir would cost between $6.50 and $23.60 per acre foot per year depending on whether sunk costs are included and the amount of storage desired; and

WHEREAS, additional stored water will not augment the long-term water rights available to the City, and may provide only minimal benefit to the City for the next forty years; and

WHEREAS, substantial funding may be required in the future for the City to purchase supplementary water rights for future population expansion; and

WHEREAS, temporary non-delivery of San Juan-Chama water does

not, according to the contract with the U. S. Department of Interior, Bureau of Reclamation, jeopardize the City's right to future deliveries of San Juan-Chama water as and when needed; and

WHEREAS, additional storage of surplus water at Abiquiu Dam would have the impact of damaging an important recreational and wilderness resource for City residents, the Rio Chama; and

WHEREAS, the Rio Arriba County Commission has by resolution opposed any increase in permanent storage at Abiquiu Dam; and

WHEREAS, there is an initiative by some Albuquerque residents to secure Congressional recognition for the Rio Chama as a National Wild and Scenic River.

BE IT RESOLVED BY THE COUNCIL, THE GOVERNING BODY OF THE CITY OF ALBUQUERQUE:

Section 1. That the City should not obtain additional storage for its water in Abiquiu Reservoir in the absence of a clear economic justification and a determination that the benefits of such storage to the City outweighs any adverse effects.

Section 2. That the Public Works Department shall investigate alternatives for use and disposition of the City's annual allotment of San Juan-Chama water. These alternatives shall include but are not limited to: aquifer recharge and the selling of water for industrial, agricultural and municipal uses.

Underscored Material - New
[Bracketed Material] - Deletion

515.5 Aztec NW
Albuquerque, NM
87107

27 July 1987

Hon. Jeff Bingaman
U. S. Senator
502 SHOB
Washington, D. C. 20510

Dear Senator Bingaman:

I wish to thank you for co-sponsoring S.850, the Rio Chama Wild and Scenic River Bill, in the U. S. Senate. The Rio Chama is a very special part of New Mexico, and deserves protection for now and the future.

I am at the hearing today in Santa Fe today in support of the legislation in its original form, particularly as it pertains to the lower portion of the river. I feel that the river should be protected above the present flood pool elevation of 6,283.5 feet. I believe there is adequate flood storage available in Abiquiu Reservoir below that level. Further, the Corps of Engineers' study has shown that there is no demand for the very expensive storage of water in Abiquiu Reservoir. Therefore I urge you to see that the bill is passed as it written, with no further amendment. Please include this letter as part of the record of this hearing.

Sincerely,

Dale W. Stahlecker

Dale W. Stahlecker

July 24, 1987

Hon. Jeff Bingaman
U.S. Senator
502 SHOB
Washington, D.C. 20510

Dear Senator Bingaman:

We ask that this letter be included in the record of the hearing of July 27, 1987 in Santa Fe, NM.

We wish your support for S.850, the bill to protect the Rio Chama between El Vado Dam and Abiquiu Resevoir, to have this area be Wild and Scenic.

We also wish you to oppose any amendment that would allow the Abiquiu Resevoir to drown more of the Rio Chama.

NAME	ADDRESS		SIGNATURE
FRANK WILLETT	RT 10 BOX 884	SANTA FE NM	Frank Willett
Nancy BALDINGER	RT 10 BOX 884	SANTA FE NM 87501	N Baldinger
Jean Bell	Rt. 6, Box 54C	Santa Fe NM 87501	Jean Bell
Allegra Amaya	Rt 10 Box 88R	Santa Fe, NM 87501	
JANET WILLIAMS	1200 DON GASPAR	Santa Fe, N.M. 87501	Janet Williams
Michael F. WALSH	16 Frasco Rd	SANTA Fe, N.M. 87505	Michael F. Walsh
PEGGY GAUSTAD	Rt. 4 Box 16K	SANTA FE, NM 87501	Peggy Gaustad
Jasmine Stewart	135 Sonrio Drive		Jasmine Stewart

LEAGUE OF WOMEN VOTERS OF NEW MEXICO
440 Cerrilos Road, Suite G
Santa Fe, New Mexico 87501

July 27, 1987

Testimony in Favor of the Rio Chama Wild and Scenic River Bill

The League of Women Voters of New Mexico supports passage of the Rio Chama Wild ans Scenic River Bill (Senate Bill 850 and House Bill 1839). As introduced, without amendment, it would protect the 32 mile stretch of the Chama between El Vado Dam and Abiquiu Reservoir. Preservation of the entire 32-mile stretch would best serve the recreational and environmental interests of the people of New Mexico and would constitute a national resource as well as a local economic benefit.

The League opposes any amendment to permit an increase of water storage at Abiquiu Dam as proposed by the Army Corps of Engineers. Much of the river system has already been man manipulated. It would be wise to preserve this last natural fragment.

The League's national position calls for identification and regulation of areas such as rivers, lakes and streams where development could result in irreversible damage. We support protection of fragile ecosystems, significant geological formations and wildlife habitats, and unique scenic areas nationwide.

The New Mexico League is grateful for the co-sponsorship of the Rio Chama Wild and Scenic River Bill by Senators Pete Domenici and Jeff Bingaman and by Representatives Manuel Lujan and Bill Richardson. We hope they will continue to offer their full support.

Thank you for this opportunity to testify.

Edith K. Pierpont
Natural Resources Chair
League of Women Voters of New Mexico

Hon. Jeff Bingaman
U.S. Senator
502 SHOB
Washington D.C. 20510

July 24, 1987

Dear Senator Bingaman:

I am unable to attend the hearing on July 27 and am writing to thank you for holding the hearing and to express my support of S 850 to protect the wild character of the Chama River. I would appreciate your strong support of the bill and strenuous resistance to any amendments that could weaken it such as allowing the water level above 6283.5'.

Sincerely
Dave

David Kraig
RT 11 Box 326-A
House D
Santa Fe, N.M.
87501

- I would like to go on record in support of an unamended S. 850. -

SOUTHWEST WILDERNESS CENTER P.O. Box 2840 Santa Fe, N.M. 87501 505/982-3126

Chama

July 22, 1987

Hon. Jeff Bingaman
U.S. Senator
502 SHOB
Washington, D.C. 20510

Dear Senator Bingaman:

I am writing in support of the Rio Chama Wild and Scenic River bill (Senate Bill 850).

The Rio Chama is truly a unique canyon system of unparalleled beauty. As a recreational resource it provides an outstanding environment for river runners, fisherman and other outdoor enthusiasts who appreciate the value of a true wilderness experience. The Chama is also an important wildlife refuge for the peregrine falcon, bald eagle, black bear, deer and elk.

It's time to assure the future of this uniquely New Mexican River by halting the growth of Abiquiu Reservoir and giving the Rio Chama " Wild and Scenic River" status.

Sincerely,

Michael Zimber

Michael Zimber
President
Southwest Wilderness Center

National Audubon Society
RANDALL DAVEY AUDUBON CENTER
P.O. Box 9314, Santa Fe, New Mexico 87504-9314
(505) 983-4609

July 27,1987

TESTAMONY BEFORE THE SENATE SUBCOMMITTEE ON PUBLIC LANDS, NATIONAL PARKS AND FORESTS OF THE ENERGY AND NATURAL RESOURCES COMMITTEE ON S. 850, THE RIO CHAMA WILD AND SCENIC RIVER BILL

BY
DAVID HENDERSON, STATE REPRESENTATIVE FOR THE NATIONAL AUDUBON SOCIETY

I am here speaking before you representing the views of the National Audubon Society, its 500,000 members across the country and particularly the 3500 members in the state of New Mexico. Thank you for this opportunity.

New Mexico is a biologically rich and diverse state. This richness stems from several factors, including the great environmental variety of the region and the fact that several major biotic areas impinge on the state like the Great Basin, Rocky Mountains, Great Plains, Mexican Plateau, and the Chihuahuan and Sonoran Deserts. The Rio Chama is an intigral part of this richness.

The Rio Chama represents a relic of what was once an intricate web of riverine and riparian habitats that were well represented throughout the great Southwest. Today, through water development for municipal, farming and ranching needs, neglect and abuse we have lost nearly 90% of all the riparian habitat in the Southwest and have greatly effected the survivability of the plant and animal species that rely on this most valuable habitat type. Congress has recognized the importance of this increasingly rare habitat by protecting the San Pedro River in Arizona for its riparian qualities. Despite these efforts irreplaceable riparian habitats and rivers are still under siege. If biological diversity is important, and it most certainly should be, then the protection of the 31 mile stretch of the Rio Chama as a Wild and Scenic River must be a top priority for all of us.

So how significant is the Rio Chama, how delicate the balance, and how real is the threat to it? Let me give you an example. The Rio Chama was once one of New Mexico's blue ribbon trout streams and still holds the record for the largest brown trout ever caught in New Mexico. But improper water management with an apparent lack of understanding of the biological balance in the river called for large volume winter water releases from El Vado Dam that nearly desimated the Rio Chama's fishery. Today, through years of hard work and cooperation from water managers and fishery biologists the fishery is showing signs of recovery and perhaps someday soon the Rio Chama will once again be a blue ribbon trout stream New Mexico can proudly display.

The Rio Chama also supports a growing population of wintering Bald Eagles, our National symbol and ironically an endangered species. This population, distinct from those that winter on Abiquiu Reservoir, rely on the rivers trout population to feed on throughout the winter. A Bald Eagle study conducted by the Army Corps of Engineers and published in 1986 recommends that Abiquiu Reservoir not be raised in order to protect and enhance the Rio Chama eagle population, their perches and their foraging areas. Bigger is not necessarily better. Yet even this year we have watched as high waters backed up behind Abiquiu Dam flooded the perches used by the Reservoir population of eagles. Those same high waters have also flooded one third of the nests of the only nesting colony of Double-Crested Cormorants in northern New Mexico, drowning many of the young in those nests.

The relationship between rivers and wildlife is well documented. The reliance of wildlife on the lush waterloving riparian habitat is something that time has created and we have discovered can not be manufactured. And yet mitigation is always a suggested option to offset the effects of water development. In the case of the lower 4-5 miles of the 31 mile proposed Wild and Scenic portion of the Rio Chama mitigation is not a viable option. No matter which way you cut the pie it will always end up showing a net loss of riparian habitat. Water development interests are far too cavalier in the way they are willing to sacrific a national resource for their self interested end. The Rio Chana deserves protection and I urge you to pass, unchanged, S.850. Thank you.

cc: Senator Jeff Bingaman
Senator Pete Domenici
Representative Bill Richardson
Representative Manuel Lujan
Mr. Phil Wallin

Rich Ryan
456 Alamo
Santa Fe 87501
984 1097

RIVER LIBBER

Bill Oliver and
Rich Ryan

SAY A PRAYER FOR THE OLD CHAMA RIVER
FOR THE COLD WATER FISH THAT USED TO LIVE IN HER
FOR LICHEN ROCKS, JUNIPER AND PINYON TREES
FOR ALL THE PEOPLE WHO'VE BROUGHT HER TO HER KNEES
SAY A PRAYER TO SET THE CHAMA FREE
CHORUS: GIMME GIMME GIVE ME BACK MY RIVER
THE WAY SHE'S FLOWIN IS BEYOND OBSCENE
YES I, YES I'M A RIVER LIBBER
I WANT TO LIBERATE THIS STREAM

I'VE RAFTED THAT RIVER AND I'VE FISHED FROM HER BANKS
I'VE SEEN DUCK AND GEESE FLYIN OVER HER IN RANK
LATELY WHAT I'VE SEEN IS TREES UNDER WATER
THE CORPS RAISED THE LAKE BUT I DON'T THINK THEY OUGHTA
LET'S SET THE CHAMA FREE (CHORUS)

NOW SOME FOLKS THINK WE'VE ALREADY LOST IT
IT SURE AIN'T WILD WHEN IT COMES FROM A FAUCET
THE ARMY CORPS THINKS THEY'RE THE BOSSES
LET'S SHATTER THE ARMY'S DREAM (CHORUS)

DOUBLE BREASTED CORMORANT AND WATER OUZEL
BALD EAGLE NESTS ALL CAUGHT IN A BAMBOOZLE
THE IDEA IS TO MAKE NATURE OUR SLAVE
SAVING HER WATER FOR A LATER DAY
I SAY THE RIVER'S GONNA MAKE US PAY (CHORUS)

TONKA TOYS by Frog & Brenda & Rich & Dan

CHORUS: WE WANNA FLOOD, WE WANNA KILL
WE WANNA INUNDATE THAT THERE HILL
WE DON'T CARE WHO PAYS THE BILL 'CAUSE
WE'RE PLAYING WITH OUR TONKA TOYS

I'LL CUT THE ROAD, YOU BLOCK THE STREAM
HE'LL PILE THE ROCKS UP IN BETWEEN
WE'LL BACK UP THE RIVER 'TIL IT FLOWS UPSTREAM
IT'S AN ENGINEER'S DREAM (CHORUS)

I GOT A BULLDOZER, YOU GOT A BACKHOE
HE'S GOT A BIG DUMP TRUCK
WE DON'T CARE ABOUT ENVIRONMENTAL IMPACT
WE'RE ONLY IN IT FOR THE BUCK MATE (CHORUS)

WE'RE ALL PLAYIN WITH OUR TONKA TOYS
JUST LIKE GOOD OLE ARMY CORPS BOYS
MAKIN LOTS OF LOVERLY NOISE
PLAYIN WITH OUR TONKA TOYS (CHORUS)

NYA NYA NYA NYA NYA, NYA NYA NYA NYA
NYA NYA NYA NYA NYA, NYA NYA NYA NYA
NYA NYA NYA NYA NYA, NYA NYA NYA NYA NYA
PLAYIN WITH OUR TONKA TOYS (CHORUS)

I GOT A LUNCHBOX, YOU GOT A THERMOS,
HE'S GOT A LITTLE WHITE HAT
AFTER LUNCH WE'LL DAMN UP THE RIVER
AND THAT'LL BE THE END OF THAT (CHORUS 2X)

HON. JEFF BINGAMAN
US SENATOR
502 SHOB.
WASH. DC. 20510

DEAR SENATOR BINGAMAN

PLEASE DO ALL YOU CAN TO LIMIT THE SIZE OF THE ABIQUIU RESERVOIR.

WE DON'T NEED TO FURTHER INHIBIT THE ABILITY OF OUR EARTH TO SUPPORT US. PLEASE PRESERVE OUR RIVER.

KINDLY INCLUDE THIS LETTER IN THE RECORD OF THE CONGRESSIONAL HEARING ON THE RIO CHAMA.

SINCERELY
ROBERT W. OTT

CRISTAUX

July 27, 1987

Hon. Jeff Bingaman
U. S. Senator
502 SHOB
Washington, D.C. 20510

Dear Hon. Senator Bingaman,

We support S. 850 and we oppose any amendment that would allow Abiquiu Reservoir to drawn any more of the Rio Chama.

We have moved here from California because of the wild and scenic beauty that is here in New Mexico. We feel that the heritage of the wilderness is important for ourselves our children and the children of the world. It is so precious we must preserve it whenever and wherever possible.

Thank you for your concern.

Please include this letter in the record of the hearing, if possible.

Sincerely

Colleen Kelley

30 Apache Ridge Rd. Box 15 Santa Fe, New Mexico, 87505

48639/3
Chama

Albuquerque 7/20/87

U.S. Senator
Jeff Bingaman
Washington, DC 20510

1987 AUG 24

Dear Sir,

I would like to raise my voice in support of the S. 850 bill for the federal protection of the Rio Chama scenic river. I would also like to have my letter included in the record of the hearing on the issue. My main reason for the support of this bill is that it is beautiful and unique area that definitely deserves federal protection. We humans need this kind of natural beauty for our mental development and to balance the impact of our industrial society.

I also strongly oppose any further expansion of the Abiquiu Reservoir that would drown one of the prettiest parts of the river.

Thank you for your support

Aldrich Fencl

Aldrich Fencl
500 Circulo Florretta NW
Albuquerque, NM 87107

364
700 X

SIERRA CLUB
ALBUQUERQUE GROUP
P.O. BOX 25271
ALBUQUERQUE, NEW MEXICO 87125

SOCIAL C... PLEASE RETURN

October 16, 1987

SENATE COMMITTEE ON
ENERGY AND NATURAL RESOURCES
RECEIVED
NOV 02 1987
WASHINGTON, D.C. 20510

The Honorable J. Bennett Johnston
Chairman
United States Senate
Committee on Energy & Natural Resources
Washington, D.C. 2051-6150

Dear Senator Johnston

Please find attached a copy of Sierra Club's answers to questions asked by Senators Bingaman and Domenici following the Senate Field Hearing in New Mexico on S. 850, Wild and Scenic designation for the Rio Chama. Senators Bingaman and Domenici requested a copy be sent to you. If this does not automatically include our answers in the official record of the hearing, we should like it to be included.

Sincerely,

Jay B. Sorenson
Sierra Club Advisor on the Rio Chama

SIERRA CLUB

ALBUQUERQUE GROUP
P.O. BOX 25271
ALBUQUERQUE, NEW MEXICO 87125

October 15, 1987

The Honorable Jeff Bingaman
United States Senator
502 Hart Senate Office Bldg.
Washington, D.C. 20510

The Honorable Pete V. Domenici
Unites States Senator
434 Dirksen senate Office Bldg.
Washington, D.C. 20510

Dear Senators Bingaman and Domenici:

In reply to your August questions, transmitted to me in September, the Albuquerque Group of the Rio Grande Chapter of the Sierra Club should like to submit the following observations:

Re: Question One: Information on Water Needs & Conservation:

What is important is what does not exist. The City does not have a comprehensive or detailed water planning process, study, or a good fix on its needs, resources, aquifer, conservation possibilities, recharge prospects, water loss as a result of evaporative loss, waste, or the danger of water evacuation at Abiquiu as a result of a 400 year flood, etc. As a result of the pressure started with our cost-benefit study of water storage at Abiquiu, the City Council, last December, in R-183, instructed its water managers to study alternatives for use and disposition of the City's annual allotment of San Juan-Chama water, including aquifer recharge. After some delay (and bypassing grant monies), the Water Utilities Division has issued an engineering study request to begin to its alternative recharge study. A close reading of the State Engineer's, Steve Reynolds, and Albuquerque's Director of of Public Works, L. A. Larranaga, response to your questions indicates Albuquerque does not need to store water at Abiquiu to assure its future needs. The bottom line in the Larranaga answer is that the costs of water storage at Abiquiu are not worth the benefits. The Army Corps' 1987 recommendation is that "no additional conservation storage at Abiquiu Reservoir be authorized by Congress at this time" reflects the reality of the absence of any entity

"willing to pay the costs of the storage." (U.S. Army Corps of Engineers, "Public Notice," September 16, 1987)

More specifically:
Supply: The standard source on water needs has been the U.S. Bureau of Reclamation and the New Mexico Interstate Stream Commission's 1976 study: New Mexico Water Resources Assessment for Planning Purposes. While rich in data, it does not specifically help with the questions you ask.

Conservation:
Again, what is outstanding is what does not exist. According to Director Larranaga's reply, (P. 6), they have neither "strategies" nor a "goal." They have no idea of the "amount of water that could be saved by conservation." Please note that no meaningful conservation efforts are underway. They do issue citations to people who allow lawn water to run into the streets, but as a matter of fact the water rates policy in place rewards heavy and wasteful use of water and penalizes attempts to conserve water. A major dimension of the problem is that the Water Utilities Division earns a considerable share of its revenue on the basis of water quantities used. The more used, the more money it makes. Water conservation today is a disincentive, not an incentive, to Division decisions. However, it is also important to note that a large share of the Division's income comes from federal grants for wastewater treatment and water quality protection. To the Sierra Club, the City should be using its heavy federal funding to encourage conservation, not a cheap-water, wasteful use policy.

State Engineer Steve Reynolds, not talking about conservation, has long stated that "a 15 % reduction in our irrigation economy could provide the water needed to double the economy based on municipal and industrial usage." (Albuq. Tribune, 4/17/80, A 5) A recent study has indicated that a 5 % increase in irrigating efficiency by the Middle Rio Grande Conservancy District would salvage 70,000 acre feet, more than Albuquerque's total current consumptive use.

What is needed is a realistic study of a combination of measures to go along with improved hydrologic assessments: an up to date conservation-oriented rate structure; an education program that is not simply tokenism; more efficient institutional arrangements for operating and connecting different parts of the water-delivery system; a study of the costs to the City of the installation of water saving devices in homes and in lawn-watering systems; an assessment of water losses in water mains and lines; conservation gains from improved irrigation systems. To gain a crude idea of what is possible, one gallon flush toilets are estimated to save 25,000 gallons a home per

year. For a community the size of Albuquerque, this could mean a rough but conservative savings of a low of 7,000 to a high of 14,000 acre feet a year. More efficient lawn watering might not produce the high irrigation savings of 70,000 acre feet mentioned above, but it could reduce by a couple hundred acre feet not only the water used but it could increase the amount available for other uses. In addition, there would be savings on the costs of pumping. On a comparative basis, it is worth noting Washington D.C., exploring options for better management of existing supplies in lieu of dams, concluded that existing supplies would be adequate for another 50 years without building the $250 million or more worth of reservoirs by simply stressing better management options. ("Area Jurisdictions Reach Agreement on Sharing Water for Rest of Century," The Washington Post, Feb. 21, 1981; Department of the Army, Baltimore District, Corps of Engineers, Metropolitan Area Water Supply Study Final Report (Baltimore: U.S.Army Corps of Engineers, Sept. 1983), p. 43).

Re: Questions two and three: Alternative Methods, & City Action, & Comprehensive Planning.

Again, what is outstanding is that the Water Utilities Division has done nothing to undertake alternatives to reservoir storage, in spite of the fact that evaporative loss is high and the risk of water loss in the event of a major flood is real. While late in coming, we applaud an effort that explores alternative methods for conserving water than behind reservoirs. There are, however, specific comments about some of Larranaga's and Reynold's statements as well as larger observations that deserve comment:

Drawdown and Low Productivity (P.4):
The Division has recently raised a new issue - drawdown and low productivity of some wells - to justify water storage at Abiquiu. It is not an obvious case. While the Division does not know what the aquifer looks like, drawdown and low productivity of some wells are problems to be expected; what is clear is that the aquifer is not a uniform sedimentary, high yield system. Certain areas have more clay and silts. Water transmisivity is uneven. It is greater in some areas and less in others. Like an oil field, wells may be in different pockets and yield more or less than other wells. It is akin to dry oil wells in a large oil field. The low productivity and drawdown are believed to be more a function of a geologic phenomena, not of time or water use. This, by the way, is the opinion of independent engineers and geohydrologists and it has been the long-standing explanation offered by the Water Utilities Division.

One other point is relevant. We use only a very small capacity of a huge aquifer. We also do not use all of our

wells all of the time. Conceivably, it is possible to pump water to the wells when they are not in use and recharge them rather than the aquifer. The City's water managers have not systematically looked into this possibility.

Pollution (P.4):
The Water Utilities Division now also raises the spectre of water pollution as justification for water storage at Abiquiu. It is misleading. There is little likelihood that the Santa Fe Aquifer would be destroyed. The existing plume of pollution is a nitrite one, caused by human and animal wastes in the South valley. It is migrating northward. It is, however, a localized and surface condition. It does not go down deep and it is not threatening either the structural integrity of the aquifer nor the entire aquifer. It is a chronic problem. We have known about it for years and years. It is definable, containable, and removable. The classic way of treating an isolated plume of pollution is to pump it out. Hobbs has been doing this for years. It mixes the contaminated water with sewage water and sells it to the oil companies for a profit. Secondary recovery of this kind of water does have a good commercial use. A more interesting and innovative way of treating it is with aquifer recharge. The recharge can push the plume back and up to the surface, where the sun can destroy the pollution - cheaply and effectively.

Worst Case Scenarios (P. 4, Larranaga letter):
Please note, the Division makes no reference to the existence of any credible City or state scenario on how the Santa Fe Aquifer could or would be structurally polluted, exhausted, or destroyed. Notice, they do not provide an analysis of a worst-case system's failure or any other scenario for that matter. The Division simply makes vague references to what "might" happen by suggesting elements of a worst-case scenario. It is a scare tactic to justify water storage at Abiquiu. Their worst case argument, however, is undercut by their statement on page six: "The overriding consideration in all of this should be the protection and preservation of the Rio Grande basin aquifer...." They are simply not going to let a system failure to occur.

Recharge: Steve Reynolds expresses doubts on some recharge possibilities for reasons of law, feasibility, and engineering cost. The Jicarilla Apache Tribe v. United States 1981 court decision would appear to justify a legal right of storage of San Juan-Chama water. Furthermore, if Albuquerque is now mining water from its aquifer, recharge of that loss would appear possible within the framework of the compacts and laws to which Reynold's refers. Reynolds also contends it would be expensive to desilt, but other experts suggest that alternatives to desilting exist. Wallin is submitting one study for the Chama Preservation

Trust and us. William Turner of AGW Consultants proposes infiltration basins built around a series of low, terraced embankments across arroyos like the Tijeras arroyo or near Cochiti. He notes this is a time-honored, ancient way the Negev was recharged. The Sierra Club is aware recharge is coming into more and more frequent use in Arizona and Texas, two compact states, and, at this stage in our research, believes recharge is feasible, legal, and a promising technology for meaningful new approaches to the insurance of New Mexico's water future. It would also seem it would be possible to protect the water of other communities like that of Espanola by storing it in the Santa Fe group of aquifers. We believe all these questions need further investigation rather than negative snap judgments now.

Wasteful Evaporative Use Justified by Reservoir Recreation?
Reynolds justifies evaporative water waste on recreation grounds. The Sierra Club has usually found itself favoring and Reynolds opposing recreational and wildlife use of water. In this case, if the issue is water to be stored for irrigation and industrial and municipal use, it is hard to see the merits of surface over aquifer storage. Elephant Butte tells the story. If it is true $20 million worth of San Juan-Chama water stored at Elephant Butte has completely evaporated in less than ten years, surface storage is a pretty poor way of storing water for the future.

Reynolds's recreational justification is surprising, for he was emphatic when the state legislation to protect the river was passed that the Colorado Compact Commission, Article III(e) barred the holding of San Juan-Chama water for recreational purposes. Since 1981, he also dismissed water storage for recreational use on the grounds it was incompatible with the Jicarilla Apache Court decision. In passing, it should also be noted, Reynolds and the Army Corps inflate the numbers of people using lake Abiquiu. Instead of counting people actually on the lake, they simply rely on an automatic counter that indicates the numbers of cars passing over the Abiquiu dam.

We very much favor diversity in river recreational use. We are aware of the fact that four surface water lakes exist above and below the El Rio Chama stretch to be designated Wild and Scenic. We believe that the Chama, the only river in the state that can be used for river running all summer, should be protected for its non-lake, environmental, and recreational values.

Sacrificing New Mexico's Environment to Protect Texas (P.5):
The Sierra Club takes strong exception to Larranaga's and the Water Utility Division's recommendation that we

sacrifice New Mexico's environment to save Texas irrigation lands. This view is clearly stated. After lamenting the "flood damage to agriculture downstream from El Paso" as a result of releasing "excess" water (after flooding the Chama), they say:

> "This damage and loss of water could not be avoided with current available storage. However, with additional storage, the losses and damages... could be at least decreased...."

Once again we see a total disregard for environmental values. It is a classic mindset that makes a Wild and Scenic River legislation imperative if we are to protect any environmental value.

We also note that the sale of surplus water suggests water that goes beyond meeting Albuquerque's water needs. If there is a barrier, it would appear to come from the State Engineer's Office based on a narrow reading of Colorado River Compact.

Conclusion

In conclusion, what disturbs the Sierra Club is that the Division cannot say how much of its water needs over the next three or four decades can be met through conservation initiatives. At this point, the Division and the State is as hard pressed to provide up to date water supply information as it is to identify credible and comprehensive conservation initiatives and proposals.

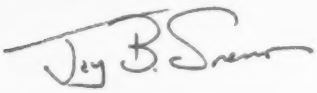
The Division's justification of water storage at Abiquiu for reasons of pollution and draw down has not been made. The Division's and the State's justification of warehousing water for recreation and the sale of surplus water is highly speculative, seems to contravene the law, does not meet tests of future need or cost-benefit analysis, and is not a good justification for opposing protection of a resource for alternative recreational uses and environmental values.

The passage of the Rio Chama Wild and Scenic legislation does not prevent Albuquerque from proceeding with efforts to study its needs, pursue alternative water storage alternatives, adopt better conservation policies, protect its aquifer and prevent the pollution of its water. Nor does our legislation prevent Albuquerque from selling its surplus water. Objections to the proposed legislation on these grounds is spurious and irresponsible.

What disturbs the Sierra Club is that there is no comprehensive effort to plan water conservation and to make the most use out of a finite resource. We are locked into outmoded approaches based on the policies of the past that helped to open the West - cheap water and heavily

subsidized federal projects - with no regard to cost-effectiveness, efficiency, water conservation, environmental impact, or the equity needs and quality of life gains of all groups. We are in a new day. We need less water waste and more imaginative, bold new ways for Albuquerque or other communities in New Mexico to conserve water to meet a growing diversity of needs and demands. Storing water in aquifers instead of in reservoirs where evaporative loss is the second highest source of water loss in our state seems to be a promising idea. Instead of a willingness to lead the way with innovative ways to overcome the wasteful use of water and to protect the environment, we get the same old tired answers from the federal, state, and local water managers, who basically lock us out of water decision making. As Einstein said: "Everything has changed, but the way we think."

Sincerely,



Jay B. Sorenson
Professor & Sierra Club Advisor on the Rio Chama

cc: Senator J. Bennett Johnston